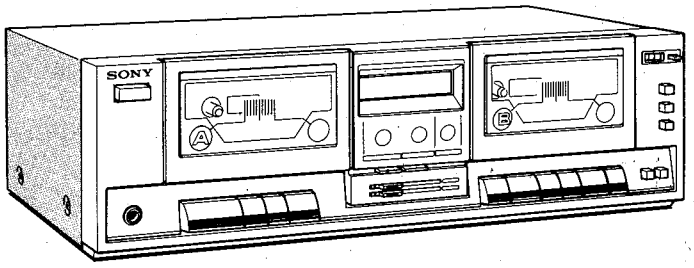
TC-W230/W233/W235

SERVICE MANUAL

TC-W230:
US Model
Canadian Model
AEP Model
UK Model
E Model
TC-W233:
US Model
TC-W235:
E Model



'Dolby' and the double-D symbol are the trade marks of Dolby laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

SPECIFICATIONS

Tape Transport Mechanism Type	DECK A	TCM-54FMF
	DECK B	TCM-53FMF

Recording system 4-track 2-channel stereo
Fast-forward and rewind time
Approx. 105 sec. (with HF-60 cassette)
Bias frequency 105 kHz
Signal-to-noise ratio (NAB, at peak level)

Cassette \ Dolby NR switch	OFF	B TYPE ON	C TYPE ON
TYPE IV (Sony METAL-ES)	58 dB	65 dB	71 dB
TYPE II (Sony UCX-S)	56 dB	63 dB	69 dB
TYPE I (Sony HF-S)	54 dB	61 dB	67 dB

Total harmonic distortion
1.0% (with Sony METAL-ES cassettes)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

Frequency response
DOLBY NR OFF
- With TYPE IV cassette (Sony METAL-ES)
  30 – 15,000 Hz (± 3 dB)
  30 – 13,000 Hz (± 3 dB, 0 VU recording)
  30 – 15,000 Hz (DIN)
- With TYPE II cassette (Sony UCX-S)
  30 – 14,000 Hz (± 3 dB)
  30 – 14,000 Hz (DIN)
- With TYPE I cassette (Sony HF-S)
  30 – 13,000 Hz (± 3 dB)
  30 – 13,000 Hz (DIN)

Wow and flutter 0.12% WRMS (NAB)
± 0.18% (IEC)
Inputs Line inputs (phono jacks)
Sensitivity 77.5 mV (– 20 dB)
Input impedance 47 kilohms
Outputs Line outputs (phono jacks)
Output level 0.44 V (– 5 dB) at load impedance 47 kilohms
Load impedance over 10 kilohms
Headphone output (stereo phone jack)
Output level – 28 dB at a load impedance of 8 ohms

0 dB = 0.775 V

– Continued on page 2 –

MICROFILM

STEREO CASSETTE DECK

SONY®

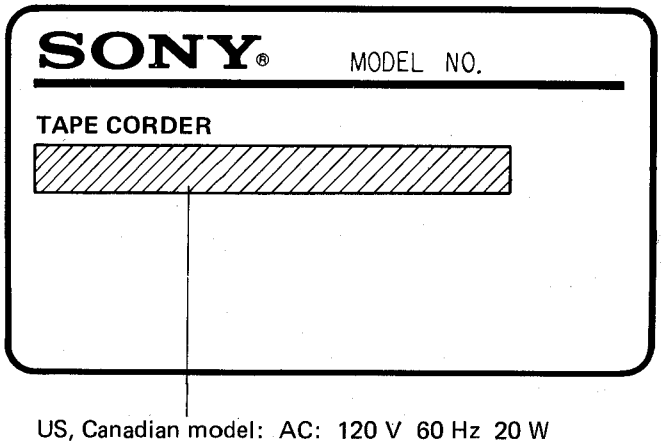
TC

General

Power requirements	
	US, Canadian model: 120 V ac, 50 Hz
	AEP model: 220 V ac, 50 Hz (240 V ac adjustable by authorized Sony personnel)
	UK model: 240 V ac, 50 Hz (220 V ac adjustable by authorized Sony personnel)
	E model: 120, 220 or 240 V ac adjustable, 50/60 Hz
Power consumption	20 watts
Dimensions	Approx. 430 × 130 × 250 mm (w/h/d) (17 × 5 1/8 × 9 7/8 inches) including projecting parts and controls
Weight	Approx. 4.5 kg (9 lbs 15 oz)

MODEL IDENTIFICATION

– specification Label –



US, Canadian model: AC: 120 V 60 Hz 20 W
AEP model: AC: 220 V 50/60 Hz 20 W
UK model: AC: 240 V 50 Hz 20 W
E model: AC: 120, 220, 240 V 50/60 Hz 20 W

SAFETY CHECK-OUT (US Model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

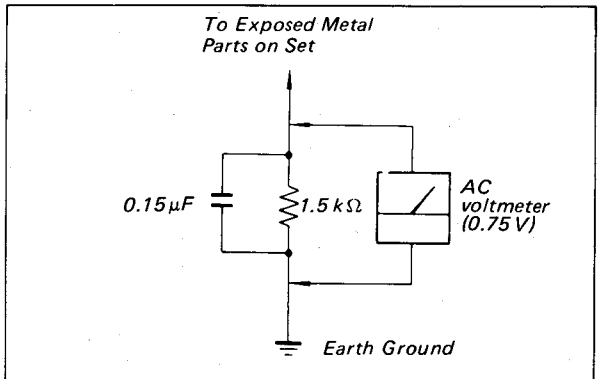
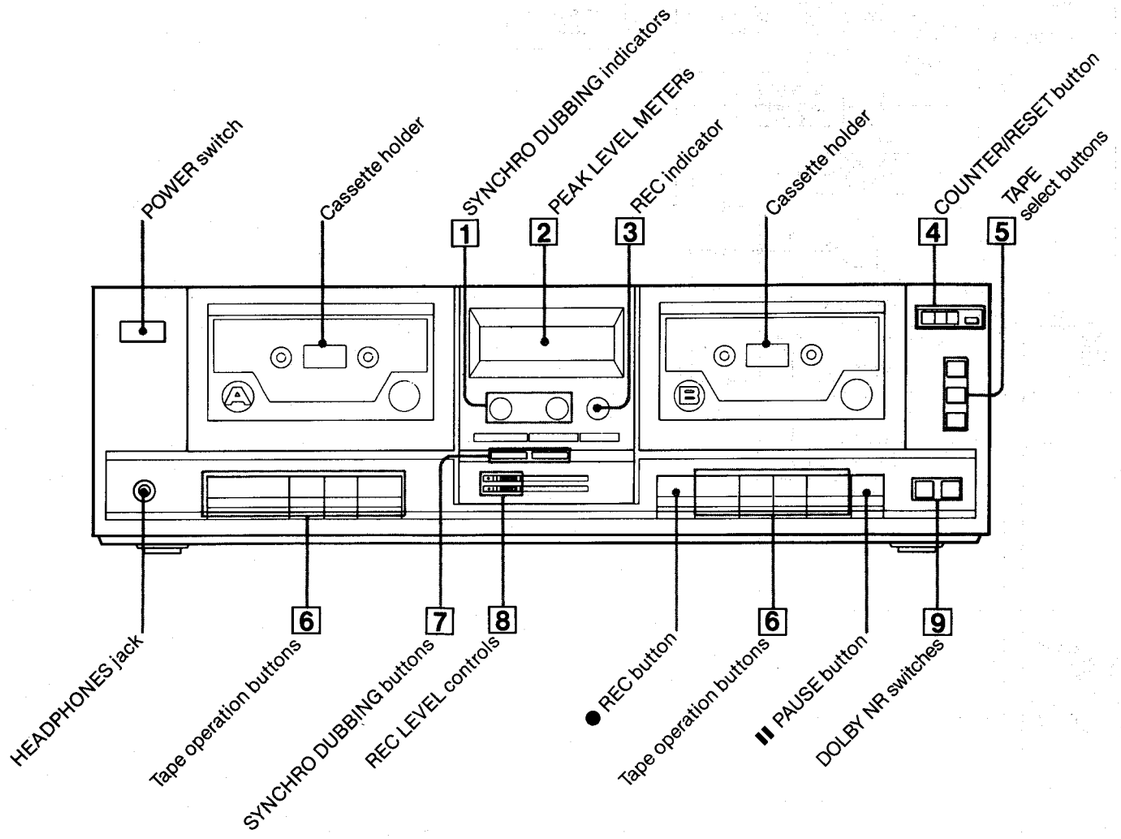


Fig. A. Using an AC voltmeter to check AC leakage.

LOCATION AND FUNCTION OF CONTROLS

Front panel



1 SYNCHRO DUBBING indicators
The dubbing speed selected by the SYNCHRO DUBBING buttons lights up.

2 PEAK LEVEL METERs
Show the peak input level of each channel during recording, and recorded levels in the playback mode. When both deck A and B are activated, the meters show the level of deck B.

3 REC (record) indicator
Lights up when the ● button is pressed (except when using the SYNCHRO DUBBING button).

4 COUNTER (tape counter) and RESET button (deck B)
Use the tape counter as a reference when searching for recorded materials. To reset to zero, press the RESET button.

5 TAPE select buttons (deck B)
Press to select the tape type.
TYPE I : for TYPE I (normal) tapes
TYPE II : for TYPE II (CrO_2) tapes
TYPE IV : for TYPE IV (metal) tapes

6 Tape operation buttons

► PLAY button

◄◄ REW (rewind) button
Press to rewind the tape.

►► FF (fast-forward) button
Press to advance the tape rapidly.

■ ⏏ STOP/EJECT button

7 SYNCHRO DUBBING buttons
Press to dub from deck A to deck B.
HIGH SPEED: Press for high speed dubbing.
NORMAL SPEED: Press for normal speed dubbing.

8 REC LEVEL (recording level) controls
Adjust the recording level while refferring to the PEAK LEVEL METERs.

9 DOLBY NR switches (deck B)
Press to record or play back using the Dolby* NR (Noise Reduction) system.

Dolby NR system	Switch setting	
	Left switch	Right switch
Dolby B	⎓ ON	⎍ B-TYPE
Dolby C	⎓ ON	⎓ C-TYPE
Dolby OFF	⎍ OFF	Either position

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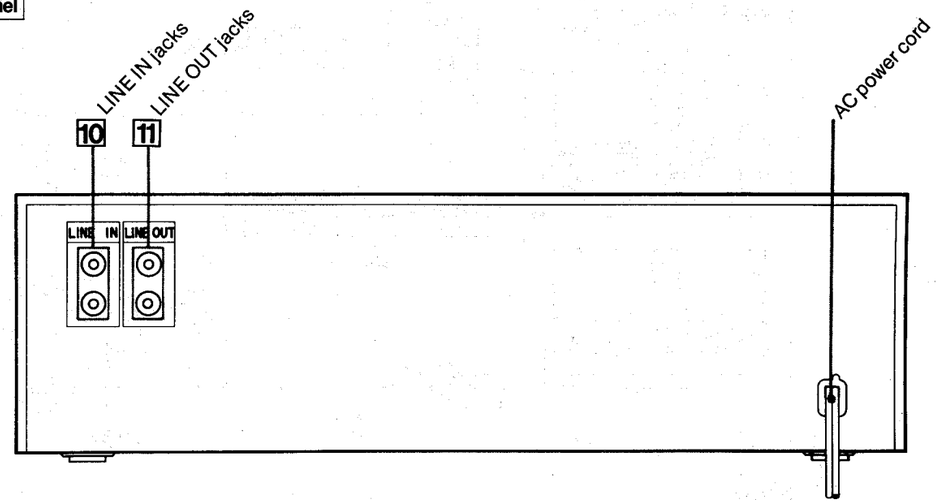
Rear panel

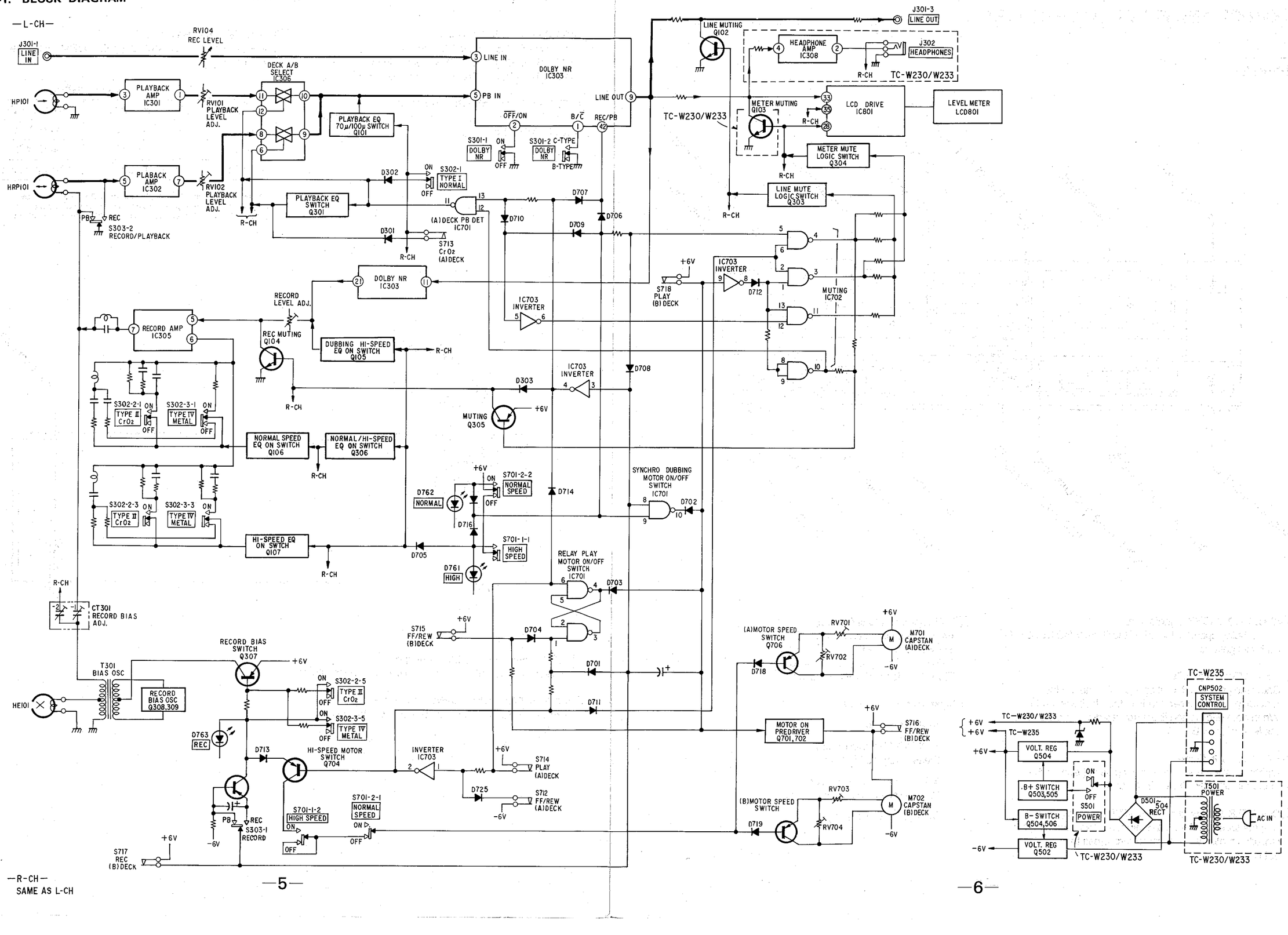


10 LINE IN (line input) jacks (phono jack)
Accept tape outputs from an amplifier for tape recording.

11 LINE OUT (line output) jacks (phono jack)
Accept tape inputs from an amplifier for playing back a tape.

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM



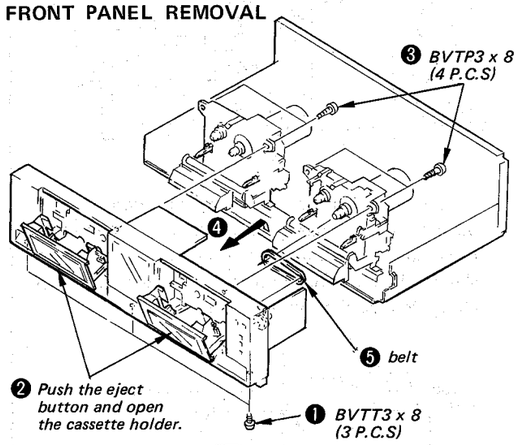
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

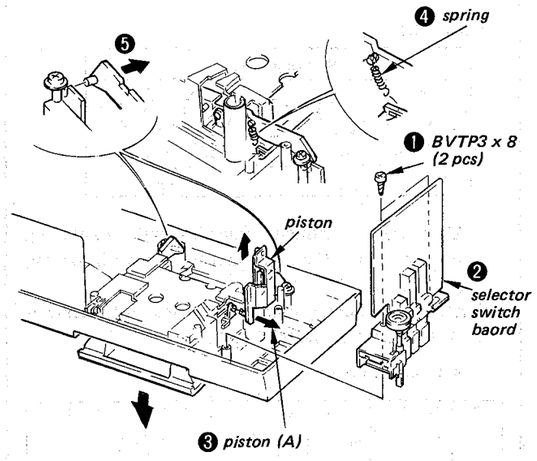
CASE REMOVAL

Remove case by taking out four screws securing case.

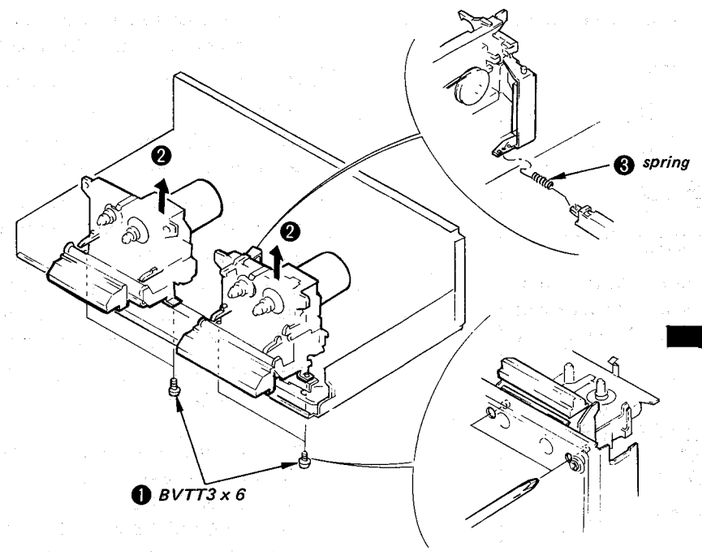
FRONT PANEL REMOVAL



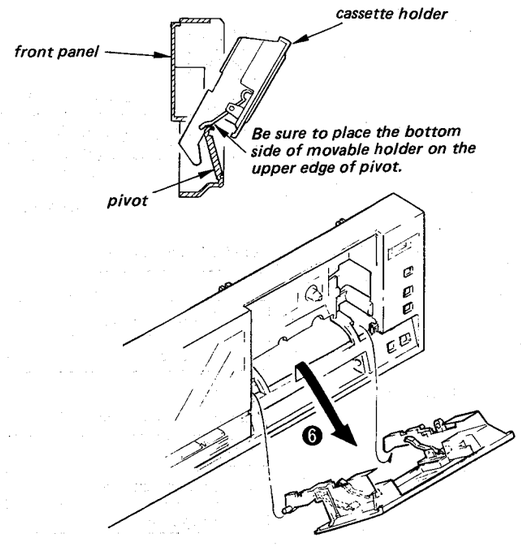
CASSETTE HOLDER REMOVAL



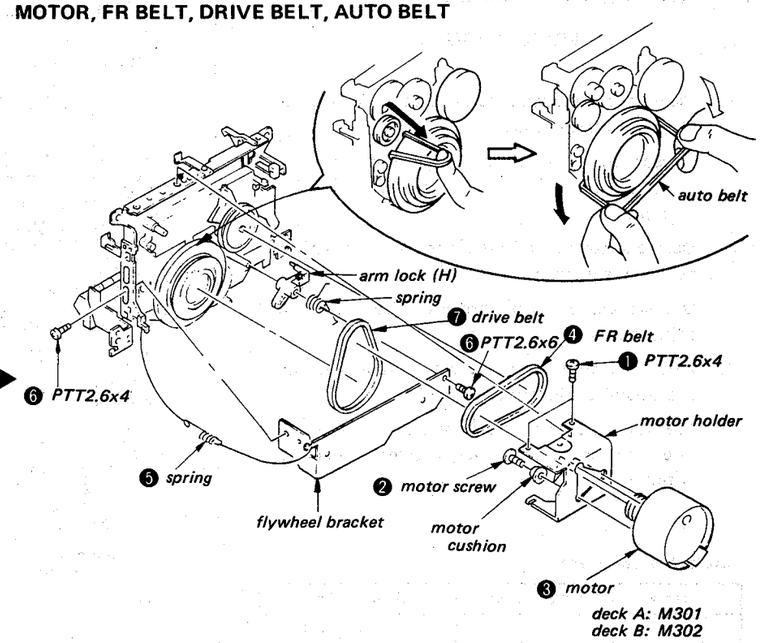
MECHANISM BLOCK REMOVAL



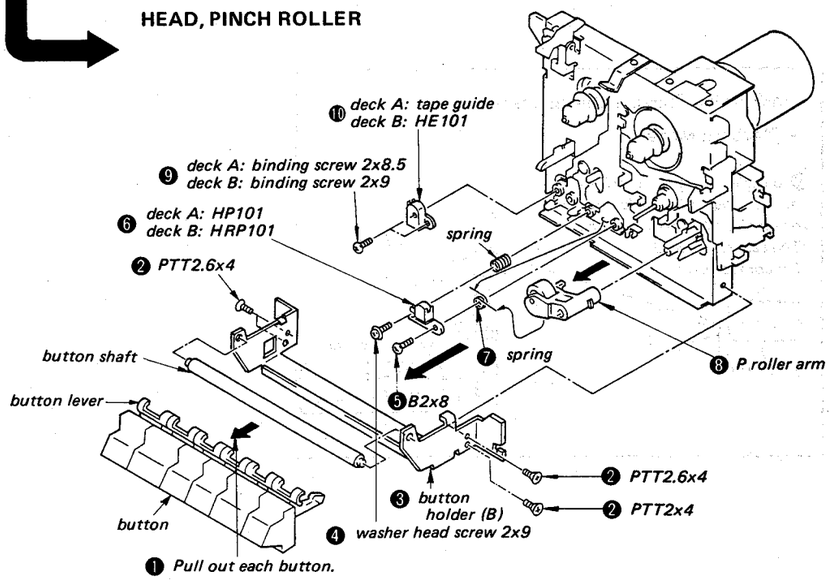
WHEN REINSTALLING;



MOTOR, FR BELT, DRIVE BELT, AUTO BELT



HEAD, PINCH ROLLER



TC-W230/W233/W235

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

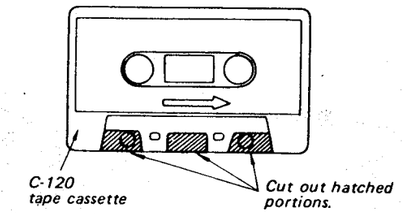
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

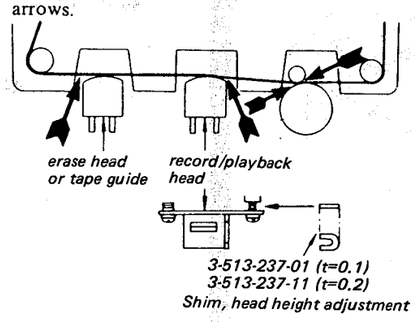
Torque	Torque meter	Meter reading
FWD	CQ-102C	35 – 70 g·cm (0.49 – 1.04 oz·inch)
FWD Back tension	CQ-102C	2 – 6 g·cm (0.014 – 0.08 oz·inch)
FF, REW	CQ-201B	70 – 160 g·cm (0.98 – 2.22 oz·inch)

Head Height Adjustment

1. Prepare an adjustment cassette as shown below.

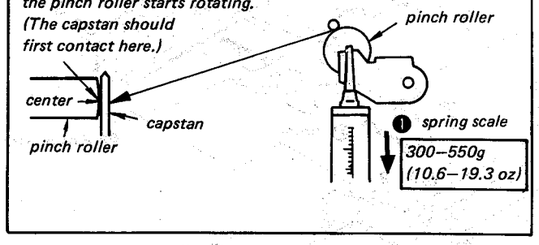


2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at the portions shown by the arrows.



Pinch Roller Pressure Measurement

– Playback Mode –



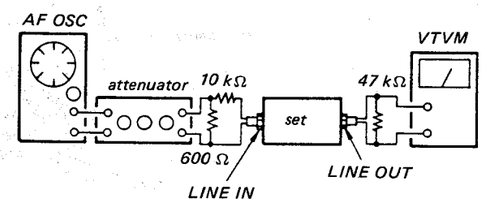
3-2. ELECTRICAL ADJUSTMENTS

1. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
2. Do not use a magnetized screwdriver for the adjustments.
3. After the adjustments, apply suitable locking compound to the parts adjusted.
4. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
5. The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
6. The adjustments should be performed for both L-CH and R-CH.

- Switches and controls should be set as follows unless otherwise specified.
  DOLBY NR switch: OFF
  SYNCHRO DUBBING switch: OFF
  TAPE TYPE switch: TYPE I

- Standard Record:
  Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

Mode: record



Standard Input Level

	LINE IN
Source impedance	10 kΩ
input level	0.25 V (–10 dB)

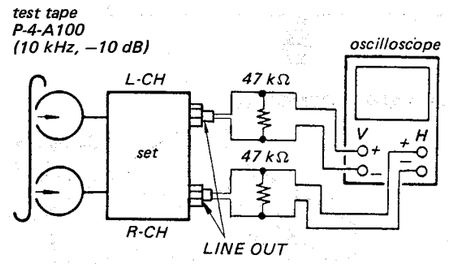
Standard Output Level

	LINE OUT
load impedance	47 kΩ
output level	0.44 V (–5 dB)

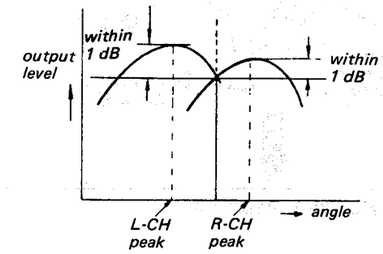
Record/playback Head Azimuth Adjustment

Procedure: DECK A , DECK B

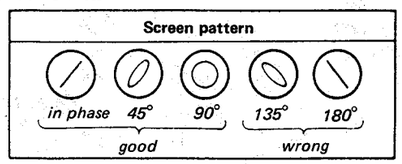
1. Mode: playback



Adjust the adjustment screw so that amplitude of output pattern becoms in maximum both in vertically and horizontally within the good range shown below. Output-level difference between channels should be within 1 dB.

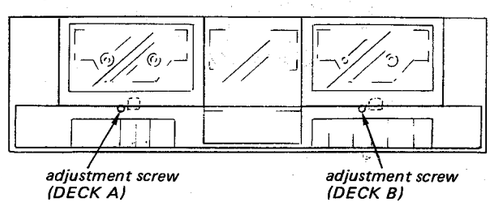


Phase Check



3. After the adjustment finishing with tightening direction, lock the adjustment screw with locking compound.
4. After the locking compound dried out, reassemble the function switch block.

Adjustment Location:

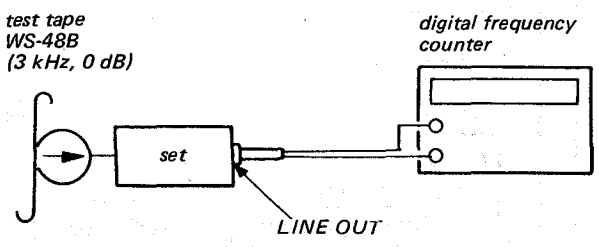


Tape Speed Adjustment DECK A , DECK B

Procedure:

Mode: playback

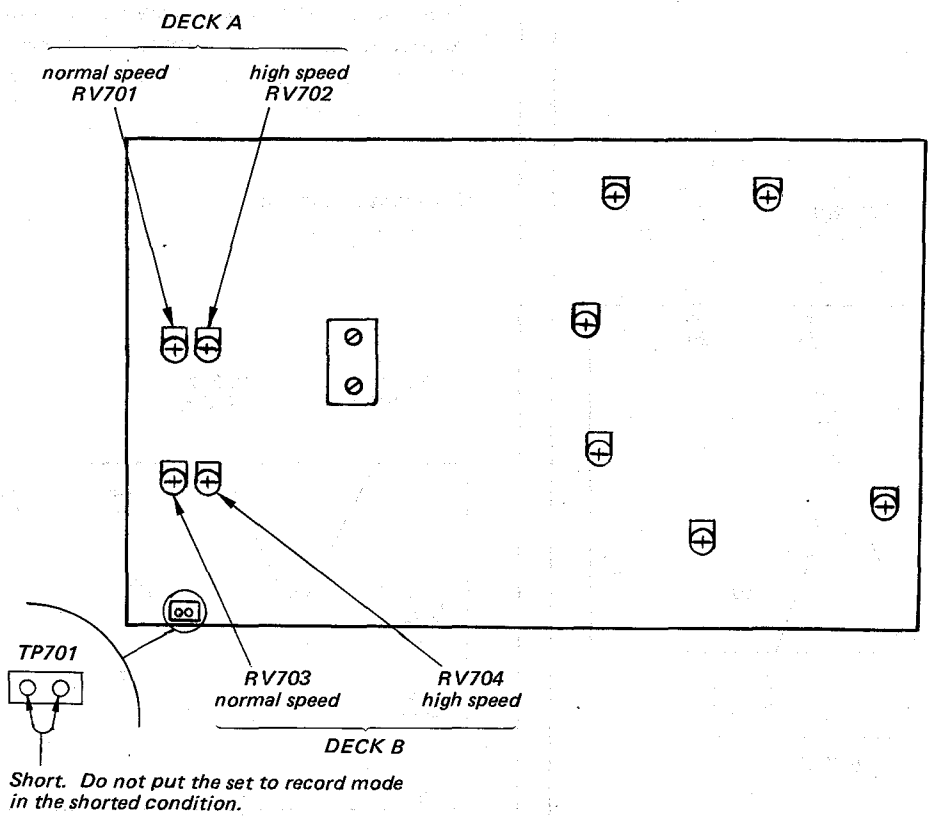
Note: Perform NORMAL SPEED first.



Specifications:

SYNCHRO DUBBING switch	Adjustment Part		Digital frequency counter
NORMAL SPEED	Deck A	RV701	2980 – 3020 Hz
	Deck B	RV703	
HIGH SPEED	Deck A	RV702	5960 – 6040 Hz
	Deck B	RV704	

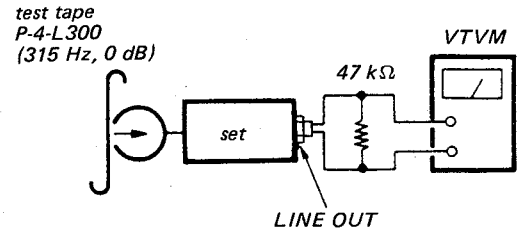
Adjustment Location: – *audio board* –



Playback Level Adjustment — DECK A, DECK B

Procedure:

Mode: playback



Adjust the DECK A: RV101, DECK B: RV102 (L-CH) and DECK A: RV201, DECK B: RV202 (R-CH) so that VTVM reads 0.44 V (−5 dB).

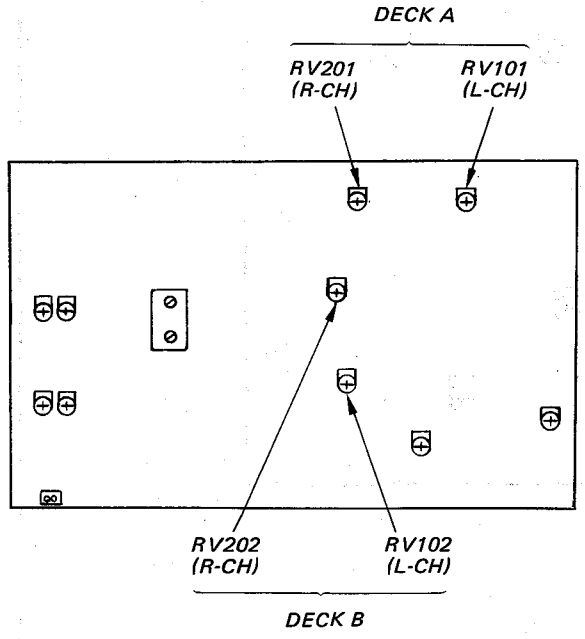
Specification:

LINE OUT level: 0.41 to 0.46 V
(−5.5 to −4.5 dB)
Level difference between channels:
less than 0.5 dB

Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location:

– audio board –



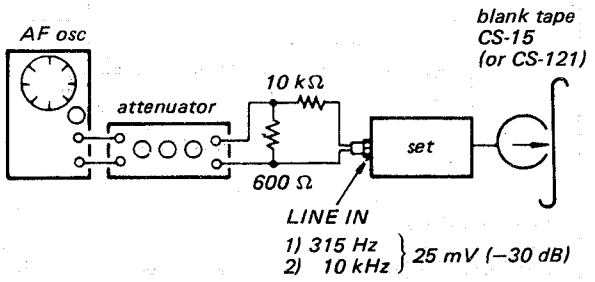
Record Bias Adjustment — DECK B

Setting:

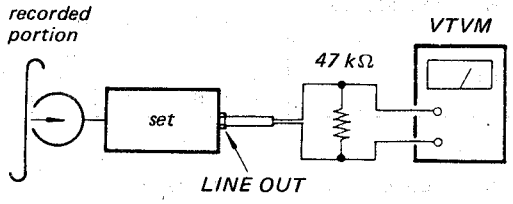
REC LEVEL control: standard record
(See page 10.)

Procedure:

1. Mode: record



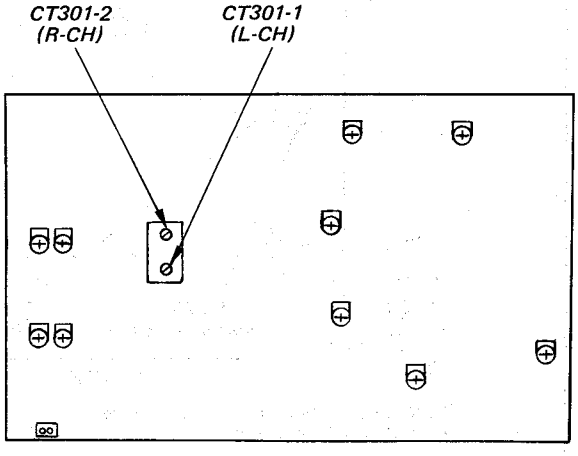
2. Mode: Playback



Confirm that the 10 kHz playback output is 0 dB relative to the 315 Hz output. If necessary, adjust CT301-1 (L-CH), CT301-2 (R-CH) and repeat the steps given above.

Adjustment Location:

– audio board –



Record Level Adjustment

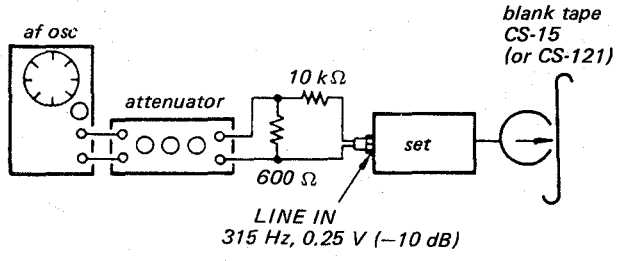
DECK B

Setting:

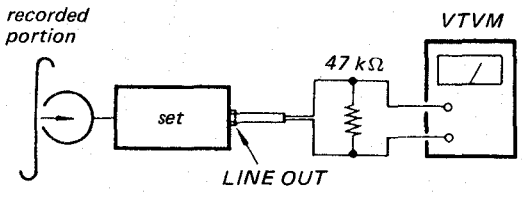
REC LEVEL control: standard record
(See page 10.)

Procedure:

1. Mode: record



2. Mode: playback



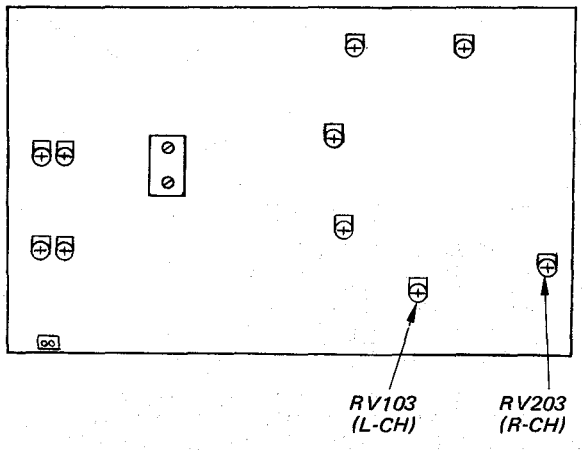
3. Play back the signal recorded in step 1. Confirm that the signal level is within the specification below. If necessary, adjust RV103 (L-CH), RV203 (R-CH) and repeat the step 1-3.

Specification:

LINE OUT level: 0.41–0.46 V
–5dB ± 0.5dB

Adjustment Location:

– audio board –



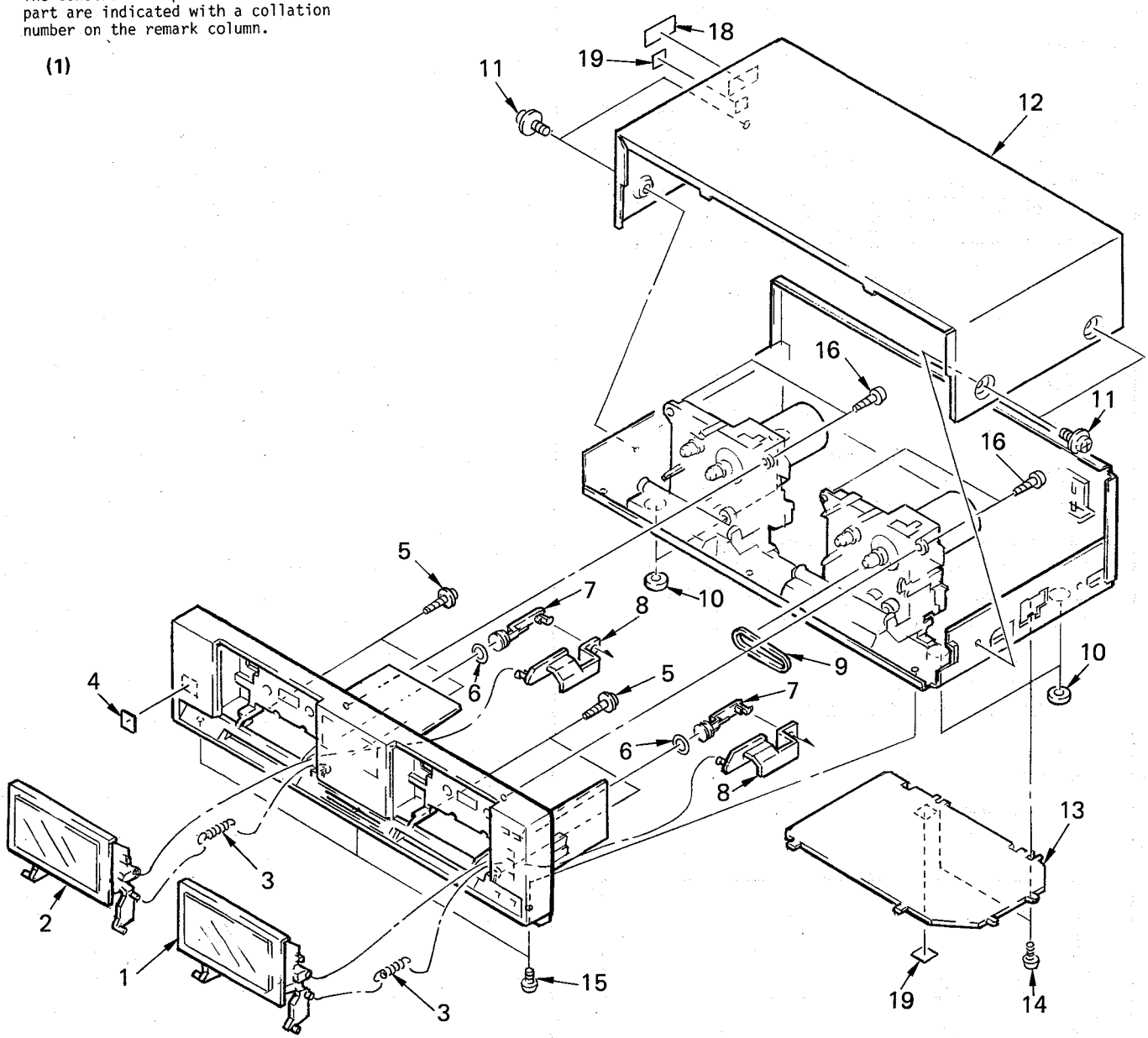
SECTION 4
EXPLODED VIEWS AND PARTS LIST

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number on the remark column.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

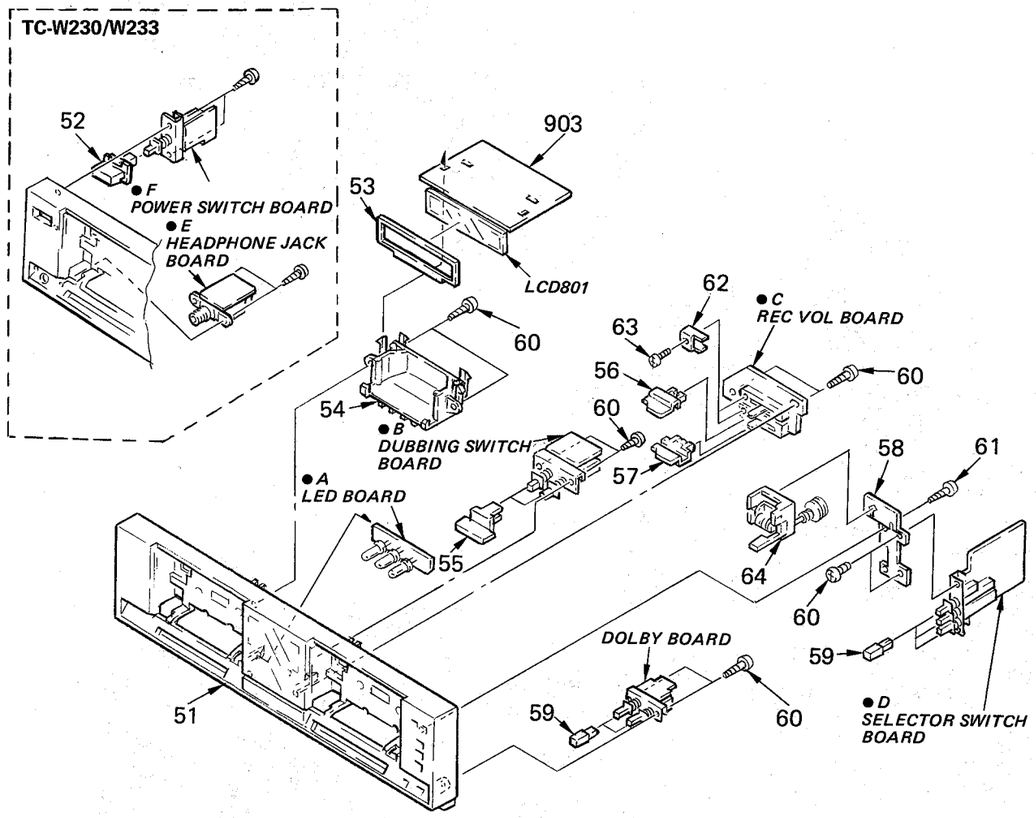
(1)



No.	Part No.	Description	Remarks
1	X-3332-419-1	(W233).....HOLDER (B) ASSY, CASSETTE	
	X-3332-421-1	(W230/W235)...HOLDER (B) ASSY, CASSETTE	
2	X-3332-418-1	(W233).....HOLDER (A) ASSY, CASSETTE	
	X-3332-420-1	(W230/W235)...HOLDER (A) ASSY, CASSETTE	
3	3-489-099-11	SPRING, TENSION	
4	3-703-710-41	(W235).....STICKER, SONY SYMBOL (12)	
	3-703-713-41	(W230/W233)...STICKER, SONY SYMBOL (10)	
5	3-703-135-00	SCREW, TAPPING	
6	3-312-441-00	RING, PISTON	
7	3-312-458-03	PISTON (A)	
8	*3-325-026-01	LEVER (B), EJECT	
9	3-530-181-XX	BELT, DETECTING	
10	3-576-731-00	FELT (H)	
11	4-886-821-01	SCREW, M3 CASE	
12	3-332-437-01	CASE	
13	*3-332-430-01	PLATE, BOTTOM	
14	7-685-871-01	SCREW +BVTT 3X6 (S)	
15	7-685-752-04	SCREW +BVTT 3X8 (S)	
16	7-685-646-71	SCREW +BVTP 3X8 TYPE2 N-S	
17	3-332-442-01	(W230:AE1)...LABEL, APPROVAL BLIND	
18	3-703-079-21	(W230:UK)...LABEL, CAUTION (BACK)	
19	3-703-680-00	(US)....LABEL, CAUTION, SUB, NEW UL	
20	3-307-371-00	SPRING (LEFT)	
21	3-332-415-21	(W230/W235)...PLATE, TRANSPARENT	
	3-332-415-31	(W233).....PLATE, TRANSPARENT	

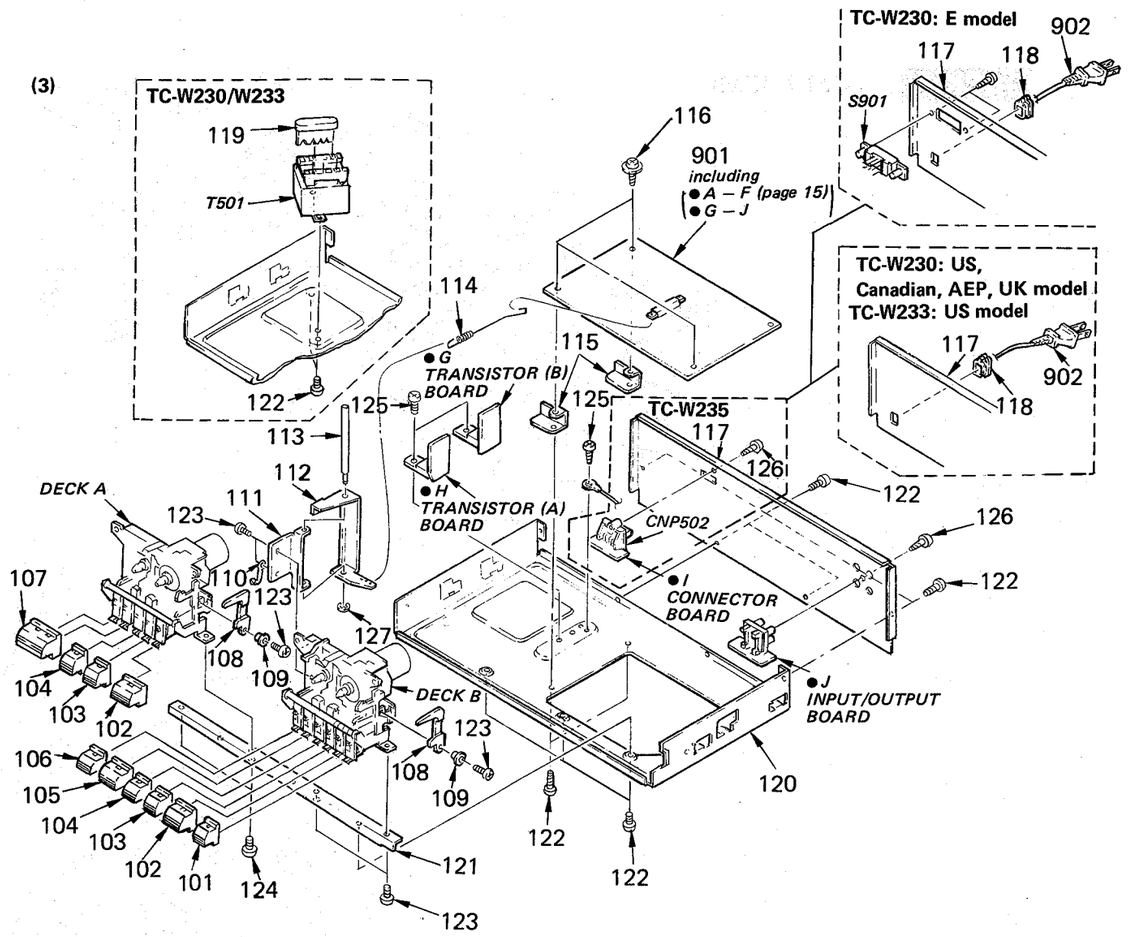
TC-W230/W233/W235

(2)



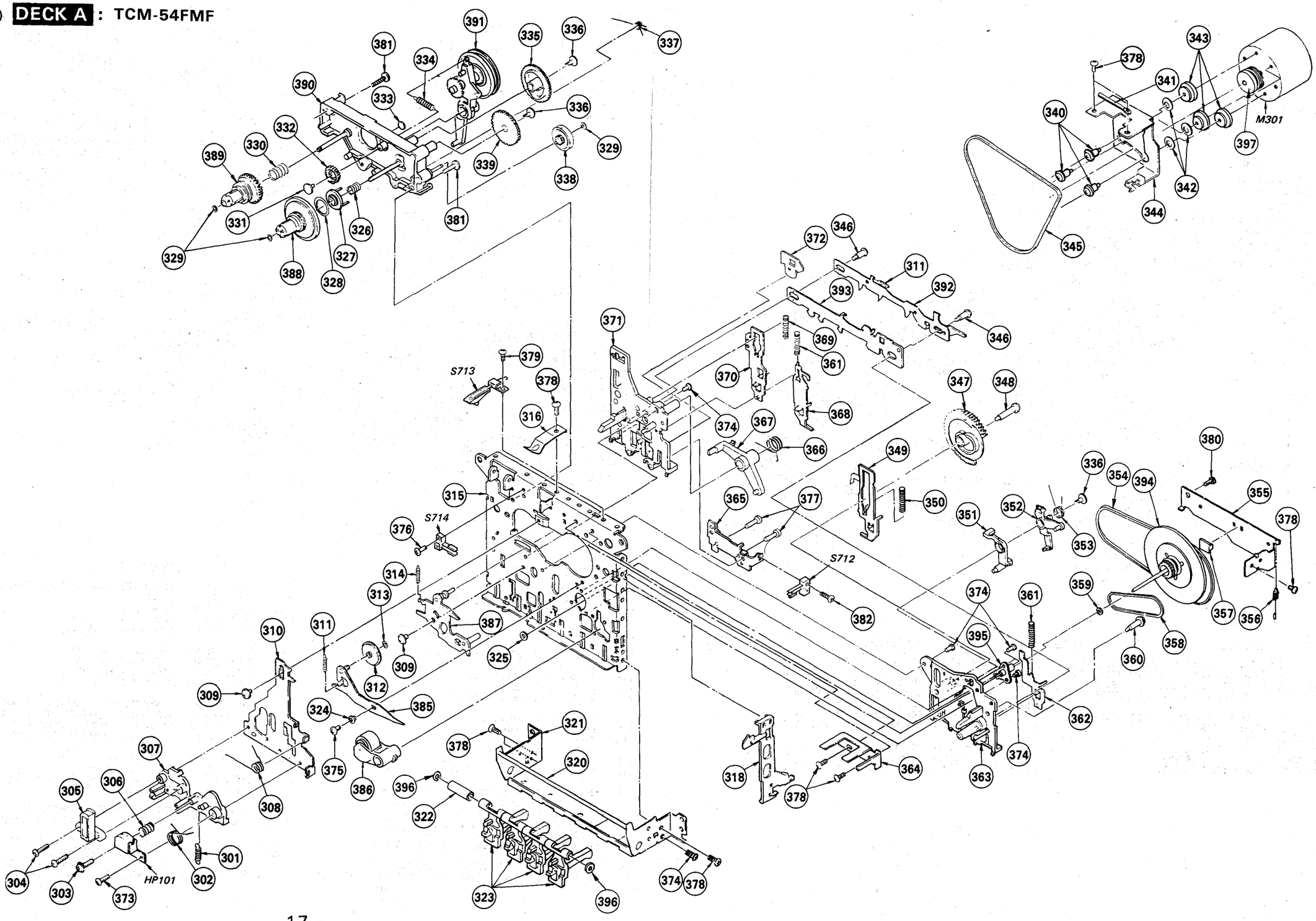
No.	Part No.	Description	Remarks
51	X-3332-414-1	(W230:US,Canadian)...PANEL ASSY, FRONT	
	X-3332-415-1	(W230:AEP,UK,E).....PANEL ASSY, FRONT	
	X-3332-416-1	(W233:US).....PANEL ASSY, FRONT	
	X-3332-417-1	(W235:E).....PANEL ASSY, FRONT	
52	3-332-417-01	(W230/W233)...KNOB (POWER), PUSH	
53	*3-332-449-01	CUSHION, DISPLAY	
54	*3-332-423-01	HOUSE, LAMP	
55	3-332-420-01	BUTTON, DUBBING	
56	3-323-446-01	KNOB (LEFT), CONTROL	
57	3-323-447-01	KNOB (RIGHT), CONTROL	
58	*3-332-429-01	BRACKET, COUNTER	
59	4-855-804-11	KNOB, SQUARE	
60	7-685-646-01	SCREW +BVTP 3X8 TYPE1	
61	7-685-646-71	SCREW +BVTP 3X8 TYPE2 N-S	
62	*3-332-443-01	PLATE, GROUND, REC VOL	
63	7-627-553-18	SCREW, PRECISION +P 2X2	
64	1-548-589-51	COUNTER, TAPE (MIDDLE TYPE)	
903	*1-618-741-11	PC BOARD, LCD LEVEL METER	
LCD801	1-520-488-11	METER, LEVEL	
S501	1-570-103-11	(W230/W233)..SWITCH, PUSH(1 KEY)(POWER)	

(3)



No.	Part No.	Description	Remarks
101	3-332-433-11	BUTTON (B), CONTROL	
102	3-332-434-01	BUTTON (C), CONTROL	
103	3-332-432-01	BUTTON (A), CONTROL	
104	3-332-433-01	BUTTON (B), CONTROL	
105	3-332-434-11	BUTTON (C), CONTROL	
106	3-332-432-11	BUTTON (A), CONTROL	
107	3-332-435-01	BUTTON (D), CONTROL	
108	*3-325-023-01	LEVER, EJECT	
109	3-325-028-01	COLLAR, EJECT	
110	*3-701-822-00	HOLDER, WIRE	
111	*3-327-629-01	BASE, REC	
112	*3-327-630-01	ARM, REC	
113	*3-327-631-01	SHAFT, REC	
114	3-332-445-01	SPRING	
115	*3-332-428-01	BRACKET (1), PC BOARD	
116	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6	
117	*3-332-436-01	(W230:US,Canadian)...PLATE, JACK	
	*3-332-436-11	(W230:E).....PLATE, JACK	
	*3-332-436-21	(W230:AEP)....PLATE, JACK	
	*3-332-436-31	(W230:UK).....PLATE, JACK	
	*3-332-436-41	(W235:E).....PLATE, JACK	
	*3-332-436-51	(W233:US).....PLATE, JACK	
118	3-703-244-00	(W230:AEP,UK)...BUSHING (2104), CORD	
	3-703-571-00	(W230:US,Canadian,E/W233:US)...BUSHING (S)(4516), CORD	
119	*3-332-444-01	(W230/W233)...COVER, TRANSFORMER SAFETY	
120	*3-332-438-01	CHASSIS	
121	*3-332-431-01	BRACKET, MD	
122	7-685-752-04	SCREW +BVTT 3X8 (S)	
123	7-685-791-04	SCREW +BVTT 2.6X5 (S)	
124	7-685-751-09	SCREW +BVTT 3X6 (S)	
125	7-685-871-01	SCREW +BVTT 3X6 (S)	
126	7-685-646-01	SCREW +BVTP 3X8 TYPE1	
127	7-624-105-04	STOP RING 2.3, TYPE -E	
901	*A-2056-320-A	(W230/W233:US)...MOUNTED PCB, AUDIO	
	*A-2056-321-A	(W230:Canadian,AEP,E)..MOUNTED PCB, AUDIO	
	*A-2056-322-A	(W230:UK)....MOUNTED PCB, AUDIO	
	*A-2056-330-A	(W235:E).....MOUNTED PCB, AUDIO	
902	⚠.1-534-817-XX	(W230:AEP)...CORD, POWER	
	⚠.1-551-188-XX	(W230:E).....CORD, POWER	
	⚠.1-551-628-00	(W230:US,Canadian/W233:US)...CORD, POWER	
	⚠.1-556-562-00	(W230:UK)....CORD, POWER	
CNP502	1-564-067-00	(W235)...SOCKET, CONNECTOR 5P	
S901	⚠.1-570-307-11	(W230:E)...SWITCH, VOLTAGE CHANGE	
T501	⚠.1-448-497-11	(W230:E).....TRANSFORMER, POWER	
T501	⚠.1-448-498-11	(W230:US,Canadian/W233:US) ...TRANSFORMER, POWER	
T501	⚠.1-448-499-11	(W230:AEP,UK)...TRANSFORMER, POWER	

(4) **DECK A** : TCM-54FMF



TCM-54FMF (DECK A)

No.	Part No.	Description
301	3-595-956-01	SPRING
302	3-595-955-01	SPRING
303	3-595-972-01	SCREW (2X9), WASHER HEAD
304	3-596-938-01	SCREW (2X8.5), BINDING
305	1-543-986-01	GUIDE, TAPE
306	3-595-954-01	SPRING
307	*3-595-926-01	BASE, HEAD
308	3-595-953-01	SPRING
309	3-595-964-01	SCREW (A)
310	*3-595-912-01	CHASSIS, HEAD
311	3-595-951-01	SPRING
312	3-595-941-01	IDLER, PLAY
313	3-558-969-01	WASHER, POLYSLIDER
314	3-595-946-01	SPRING (C)
315	*3-595-901-01	CHASSIS
316	3-595-916-01	SPRING
318	3-595-932-01	LEVER (F), EJECT
320	*3-595-920-01	SHAFT (SO), BUTTON
321	*3-595-020-01	HOLDER (B), BUTTON
322	*3-596-018-01	COLLAR , BITTON
323	3-595-933-01	LEVER, BUTTON
324	3-595-919-01	COLLAR
325	3-595-970-01	WASHER, OIL STOP
326	3-595-961-01	SPRING
327	3-595-938-01	CLUTCH, AUTO
328	3-595-968-01	FELT, AUTO CLUTCH
329	3-558-708-11	WASHER, STOPPER
330	3-595-957-01	SPRING
331	3-595-928-01	BUSHING
332	3-595-927-01	GEAR, FF
333	3-596-013-01	WASHER (5.6X0.19), LUMILER
334	3-595-963-01	SPRING
335	3-595-937-01	GEAR, AUTO CAM
336	3-595-934-01	BUSHING
337	3-595-960-01	SPRING
338	3-595-935-01	PULLEY, AUTO
339	3-595-936-01	GEAR, AUTO
340	3-515-973-01	SCREW, MOTOR
341	*3-596-004-01	CLAMP, CORD
342	3-598-364-01	WASHER (B)
343	3-595-945-01	CUSHION, MOTOR
344	*3-596-024-01	HOLDER, MOTOR
345	3-596-010-01	BELT, FR
346	3-595-965-01	SCREW (B)
347	3-595-929-01	GEAR (C)
348	3-595-967-01	SCREW (D)
349	*3-595-904-01	LEVER (H), FF
350	3-595-947-01	SPRING
351	3-595-939-01	ARM (B), AUTO
352	3-595-940-01	ARM, AUTO LOCK
353	3-595-962-01	SPRING
354	3-595-998-01	BELT, DRIVE
355	*3-595-995-01	BRACKET, FLYWHEEL
356	3-595-959-01	SPRING
357	3-595-931-01	SPACER, CAPSTAN

TCM-54FMF (DECK A)

No.	Part No.	Description
358	3-595-944-01	BELT, AUTO
359	3-701-437-21	WASHER, POLY-SLIDER
360	3-595-966-01	SCREW (C)
361	3-595-948-01	SPRING
362	*3-595-991-01	LEVER, STOP
363	3-595-922-01	HOLDER (A), LEVER
364	*3-595-913-01	PROTECTOR, SWITCH
365	*3-595-906-01	BRACKET, SOLENOID
366	3-595-983-01	SPRING
367	3-595-930-01	ARM (H), LOCK
368	*3-595-905-01	LEVER (H), REW
369	3-595-949-01	SPRING
370	*3-595-909-01	LEVER (B), PLAY
371	3-595-923-01	HOLDER (B), LEVER
372	*3-595-918-01	ARM, INTERLOCK
373	7-621-772-40	SCREW +B 2X8
374	7-685-781-01	SCREW +PTT 2X4 (S)
375	7-685-782-01	SCREW +PTT 2X5 (S)
376	7-685-783-01	SCREW +PTT 2X6 (S)
377	7-685-786-01	SCREW +PTT 2X12 (S)
378	7-685-790-01	SCREW +PTT 2.6X4 (S)
379	7-685-791-01	SCREW +PTT 2.6X5 (S)
380	7-685-792-01	SCREW +PTT 2.6X6 (S)
381	3-685-863-01	SCREW +BVTT 2.6X8 (S)
382	7-685-864-01	SCREW +BVTT 2.6X10 (S)
385	*X-3595-902-1	ARM (HT) ASSY, IDLER
386	X-3595-905-1	ARM ASSY, P ROLLER
387	*X-3595-917-1	ARM ASSY, SHIFT
388	X-3595-906-1	REEL ASSY, TAKE-UP
389	X-3595-907-1	REEL ASSY, SUPPLY
390	X-3595-908-1	BASE ASST (B), REEL
391	X-3595-919-1	ARM ASSY, CLUTCH
392	*X-3595-904-1	CAM (B) ASSY, LOCK
393	X-3595-918-1	CAM (A) ASSY, LOCK
394	X-3595-920-1	FLYWHEEL ASSY (S)
395	X-3595-911-1	HOUSING ASSY
396	3-701-440-01	WASHER
397	X-3595-921-1	PULLEY ASSY, MOTOR

ELECTRICAL PARTS

HP101	1-543-363-11	HEAD (PB)
M301	X-3595-921-1	MOTOR, CAPSTAN
S712	1-570-302-11	SWITCH, LEAF (B)(FF/REW)
S713	1-570-305-11	SWITCH, LEAF (E)(CrO2)
S714	1-570-304-11	SWITCH, LEAF (D)(PLAY)

TCM-53FMF (DECK B)

No.	Part No.	Description
401	3-595-956-01	SPRING
402	3-595-955-01	SPRING
403	3-595-972-01	SCREW (2X9), WASHER HEAD
404	3-595-971-01	SCREW (2X9), BINDING
405	3-595-954-01	SPRING
406	*3-595-926-01	BASE, HEAD
407	3-595-953-01	SPRING
408	3-595-964-01	SCREW (A)
409	*3-595-912-01	CHASSIS, HEAD
410	3-595-951-01	SPRING
411	3-595-941-01	IDLER, PLAY
412	3-595-946-01	SPRING (C)
413	3-595-969-01	WASHER, POLYSLIDER
414	3-595-919-01	COLLAR
415	*3-595-902-01	ARM, PAUSE
416	3-558-708-11	WASHER, OIL STOP
417	*3-595-901-01	CHASSIS
419	3-595-932-01	LEVER (F), EJECT
420	*3-595-020-01	HOLDER (B), BUTTON
421	*3-595-920-01	SHAFT, BUTTON
422	3-595-933-01	LEVER, BUTTON
423	*3-596-023-01	BRACKET, REC SWITCH
424	*3-595-994-01	ARM, REC
425	*3-596-006-01	SCREW (2.6X22), DIA
426	*3-681-432-01	CLAMP, CORD
427	3-595-925-01	SENSOR, REC
428	3-595-916-01	SPRING
429	3-595-961-01	SPRING
430	3-595-938-01	CLUTCH, AUTO
431	3-595-968-01	FELT, AUTO CLUTCH
432	3-558-708-01	WASHER, STOPPER
433	3-595-928-01	BUSHING
434	3-595-957-01	SPRING
435	3-595-927-01	GEAR, FF
436	3-596-013-01	WASHER (5.6X0.19), LUMILER
437	3-595-963-01	SPRING
438	3-595-937-01	GEAR, AUTO CAM
439	3-595-928-01	BUSHING
440	3-595-960-01	SPRING
441	3-595-935-01	PULLEY, AUTO
442	3-595-936-01	GEAR, AUTO
443	3-595-011-01	WASHER (B)
444	3-595-945-01	CUSHION, MOTOR
445	*3-595-995-01	HOLDER, MOTOR
446	3-515-973-01	SCREW, MOTOR
447	3-596-010-01	BELT, FR
448	3-595-965-01	SCREW (B)
449	*3-595-918-01	ARM, INTERLOCK
450	*3-595-992-01	LEVER (C), REC
451	3-595-923-01	HOLDER (B), LEVER
452	*3-595-909-01	LEVER (B), PLAY
453	3-595-949-01	SPRING
454	3-595-948-01	SPRING
455	*3-595-905-01	LEVER (H), REW
456	3-595-983-01	SPRING
457	*3-595-907-01	LEVER (BH), REC

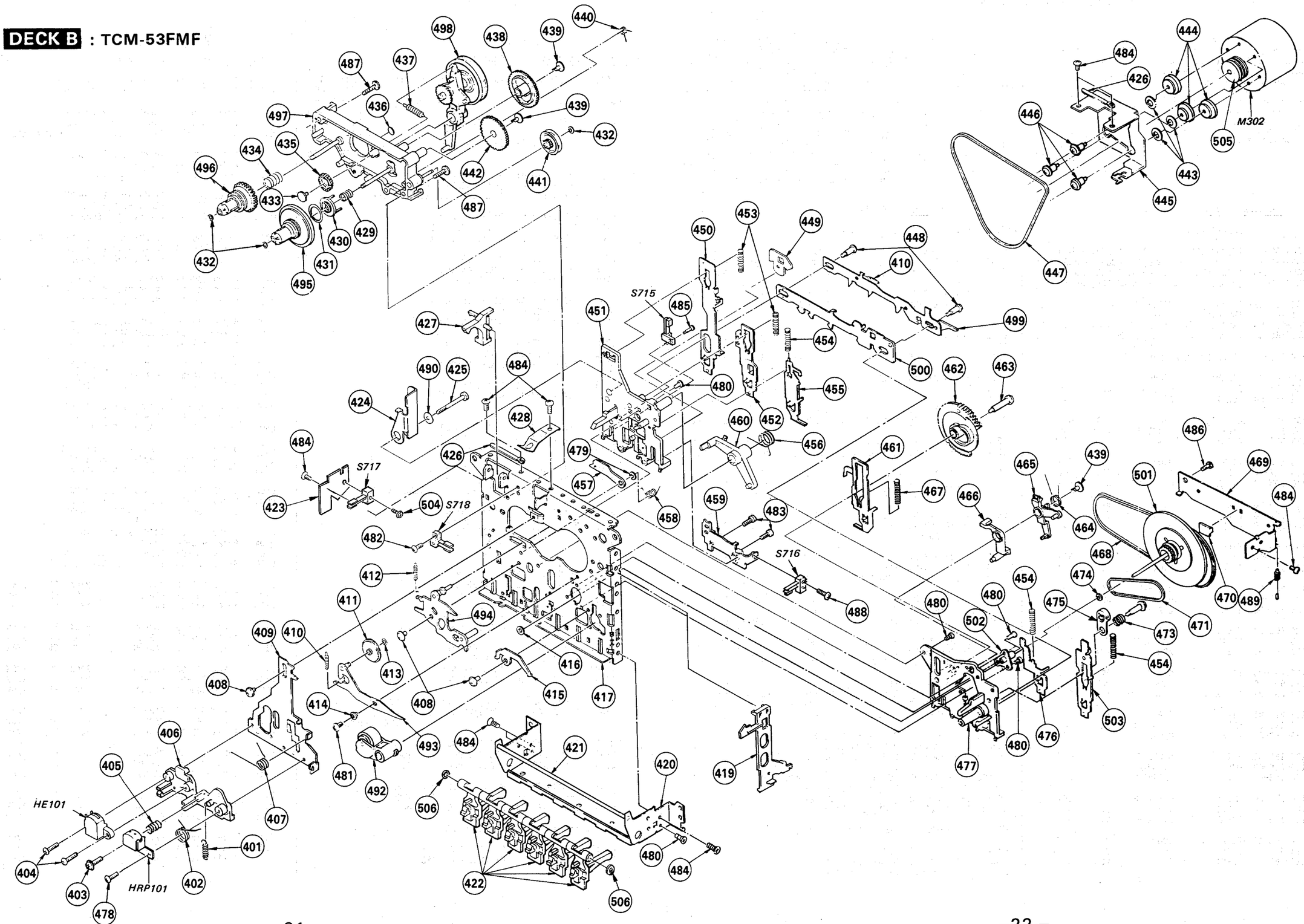
TCM-53FMF (DECK B)

No.	Part No.	Description
458	3-595-950-01	SPRING (B)
459	*3-595-906-01	BRACKET, SOLENOID
460	3-595-930-01	ARM (H), LOCK
461	*3-595-904-01	LEVER (H), FF
462	3-595-929-01	GEAR (C)
463	3-595-967-01	SCREW (D)
464	3-595-962-01	SPRING
465	3-595-940-01	ARM, AUTO LOCK
466	3-595-939-01	ARM (B), AUTO
467	3-595-947-01	SPRING
468	3-595-942-01	BELT, DRIVE
469	*3-595-993-01	BRACKET, FLYWHEEL
470	3-595-932-01	SPACER, CAPSTAN
471	3-595-944-01	BELT, AUTO
472	3-595-966-01	SCREW (C)
473	3-595-952-01	SPRING
474	3-701-437-21	WASHER, POLY-SLIDER
475	3-595-924-01	CAM, PAUSE
476	*3-595-991-01	LEVER, STOP
477	3-595-922-01	HOLDER (A), LEVER
478	7-621-772-40	SCREW +B 2X8
479	7-624-104-04	STOP RING 2.0, TYPE -E
480	7-685-781-01	SCREW +PTT 2X4 (S)
481	7-685-782-01	SCREW +PTT 2X5 (S)
482	7-685-783-01	SCREW +PTT 2X6 (S)
483	7-685-786-01	SCREW +PTT 2X12 (S)
484	7-685-790-01	SCREW +PTT 2.6X4 (S)
485	7-685-791-01	SCREW +PTT 2.6X5 (S)
486	7-685-792-01	SCREW +PTT 2.6X6 (S)
487	7-685-863-01	SCREW +BVTT 2.6X8 (S)
488	7-685-864-01	SCREW +BVTT 2.6X10 (S)
489	3-595-959-01	SPRING
490	7-688-002-11	W 2.6, MIDDLE
492	X-3595-905-1	ARM ASSY, P ROLLER
493	*X-3595-902-1	ARM (HT) ASSY, IDLER
494	*X-3595-917-1	ARM ASSY, SHIFT
495	X-3595-906-1	REEL ASSY, TAKE-UP
496	X-3595-907-1	REEL ASSY, SUPPLY
497	X-3595-908-1	BASE ASST (B), REEL
498	X-3595-919-1	ARM ASSY, CLUTCH
499	*X-3595-904-1	CAM (B) ASSY, LOCK
500	3-595-910-01	CAM (A) ASSY, LOCK
501	X-3595-920-1	FLYWHEEL ASSY (S)
502	X-3595-911-1	HOUSING ASSY
503	*X-3595-903-1	LEVER (B) ASSY, PAUSE
504	7-685-854-01	SCREW, +BVTT 2×8
505	X-3595-921-1	PULLEY ASSY, MOTOR
506	3-701-441-01	WASHER

ELECTRICAL PARTS

HE101	1-543-261-11	HEAD, ERASE (886-01-24)
HRP101	1-543-260-11	HEAD, REC/PB (223-30-46)
M302	X-3595-921-1	MOTOR, CAPSTAN
S715	1-570-303-11	SWITCH, LEAF (C)(MOTOR)
S716	1-570-302-11	SWITCH, LEAF (B)(FF/REW)
S717	1-570-301-11	SWITCH, LEAF (A)(REC)
S718	1-570-304-11	SWITCH, LEAF (D)(PLAY)

(5) **DECK B** : TCM-53FMF



TC-W230/W233/W235

SECTION 5
ELECTRICAL PARTS LIST

NOTE:
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	*A-2056-320-A	(W230/W233:US)...MOUNTED PCB, AUDIO			
	*A-2056-321-A	(W230:Canadian,AEP,E)..MOUNTED PCB, AUDIO			
	*A-2056-322-A	(W230:UK).....MOUNTED PCB, AUDIO			
	*A-2056-330-A	(W235:E).....MOUNTED PCB, AUDIO			
902	⚠1-534-817-XX	(W230:AEP)....CORD, POWER			
	⚠1-551-188-XX	(W230:E).....CORD, POWER			
	⚠1-551-628-00	(W230:US,Canadian/W233:US)...CORD, POWER			
	⚠1-556-562-00	(W230:UK).....CORD, POWER			
903	*1-618-741-11	PC BOARD, LCD LEVEL METER			
C101	1-162-287-31	CERAMIC	270PF	10%	50V
C102	1-136-157-00	FILM	0.022MF	5%	50V
C103	1-123-330-00	ELECT	22MF	20%	16V
C104	1-162-292-31	CERAMIC	680PF	10%	50V
C105	1-136-157-00	FILM	0.022MF	5%	50V
C106	1-123-330-00	ELECT	22MF	20%	16V
C107	1-136-158-00	FILM	0.027MF	5%	50V
C109	1-124-927-11	ELECT	4.7MF	20%	50V
C110	1-110-203-00	MYLAR	0.0047MF	5%	50V
C111	1-136-173-00	FILM	0.47MF	5%	50V
C112	1-136-167-00	FILM	0.15MF	5%	50V
C113	1-136-155-00	FILM	0.015MF	5%	50V
C114	1-136-169-00	FILM	0.22MF	5%	50V
C115	1-136-163-00	FILM	0.068MF	5%	50V
C116	1-136-161-00	FILM	0.047MF	5%	50V
C117	1-110-205-00	MYLAR	0.0068MF	5%	50V
C118	1-136-153-00	FILM	0.01MF	5%	50V
C121	1-124-183-00	ELECT	2.2MF	20%	50V
C122	1-124-903-00	ELECT	1MF	20%	50V
C123	1-110-205-00	MYLAR	0.0068MF	5%	50V
C124	1-124-899-91	ELECT	22MF	20%	25V
C125	1-136-163-00	FILM	0.068MF	5%	50V
C126	1-124-907-00	ELECT	10MF	20%	50V
C127	1-162-288-31	CERAMIC	330PF	10%	50V
C128	1-136-273-91	FILM	75PF	5%	630V
C129	1-110-198-00	MYLAR	0.0018MF	5%	50V
C130	1-136-153-00	FILM	0.01MF	5%	50V
C131	1-136-155-00	FILM	0.015MF	5%	50V
C132	1-110-206-00	MYLAR	0.0082MF	5%	50V
C133	1-136-153-00	FILM	0.01MF	5%	50V
C134	1-110-206-00	MYLAR	0.0082MF	5%	50V
C135	1-124-903-00	ELECT	1MF	20%	50V
C138	1-110-198-00	MYLAR	0.0018MF	5%	50V
C301	1-124-468-11	ELECT	100MF	20%	6.3V
C302	1-124-468-11	ELECT	100MF	20%	6.3V
C303	1-124-468-11	ELECT	100MF	20%	6.3V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C304	1-124-468-11	ELECT	100MF	20%	6.3V
C305	1-129-713-00	FILM	0.0082MF	10%	630V
C306	1-110-206-00	MYLAR	0.0082MF	5%	50V
C307	1-110-202-00	MYLAR	0.0039MF	5%	50V
C308	1-110-202-00	MYLAR	0.0039MF	5%	50V
C309	1-124-903-00	ELECT	1MF	20%	50V
C310	1-124-902-00	ELECT	0.47MF	20%	50V
C311	1-124-904-00	ELECT	2.2MF	20%	50V
C313	1-136-161-00	FILM	0.047MF	5%	50V
C314	1-123-343-00	ELECT	33MF	20%	25V
C399	1-162-113-00	(W230/W233)...CERAMIC	0.01MF	30%	16V
C501	1-124-563-11	(W235).....ELECT	2200MF	20%	25V
C501	1-124-636-00	(W230/W233)...ELECT	3300MF	20%	25V
C502	1-124-563-11	(W235).....ELECT	2200MF	20%	25V
C502	1-124-636-00	(W230/W233)...ELECT	3300MF	20%	25V
C503	1-124-478-11	ELECT	100MF	20%	25V
C504	1-124-478-11	ELECT	100MF	20%	25V
C505	1-124-471-00	ELECT	1000MF	20%	6.3V
C506	1-124-471-00	ELECT	1000MF	20%	6.3V
C507	1-124-899-91	ELECT	22MF	20%	25V
C701	1-124-903-00	ELECT	1MF	20%	50V
C702	1-124-905-91	ELECT	3.3MF	20%	50V
C703	1-124-905-91	ELECT	3.3MF	20%	50V
C708	1-162-294-31	CERAMIC	0.001MF	10%	50V
C709	1-124-904-00	ELECT	2.2MF	20%	50V
C710	1-162-306-31	CERAMIC	0.01MF	30%	16V
C712	1-124-906-11	ELECT	4.7MF	20%	50V
C791	1-124-927-11	ELECT	4.7MF	20%	50V
C801	1-124-903-00	ELECT	1MF	20%	50V
C802	1-124-904-00	ELECT	2.2MF	20%	50V
C851	1-124-903-00	ELECT	1MF	20%	50V
C852	1-124-904-00	ELECT	2.2MF	20%	50V
C891	1-110-204-00	MYLAR	0.0056MF	5%	50V
C892	1-124-892-91	ELECT	47MF	20%	10V
CNP301	*1-560-061-00	PIN, CONNECTOR 3P			
CNP302	*1-560-064-00	PIN, CONNECTOR 6P			
CNP303	*1-564-505-31	PLUG, CONNECTOR 2P			
CNP502	1-564-067-00	(W235)...SOCKET, CONNECTOR 5P			
CNP701	*1-560-066-00	PIN, CONNECTOR 10P			
CNP702	*1-560-230-00	PIN, CONNECTOR 12P			
CNP801	*1-564-521-11	PLUG, CONNECTOR 6P			
CT301	1-141-225-00	CAP, TUNING, TRIMMER			
D301	8-719-107-94	DIODE 1SS202-1			
D302	8-719-107-94	DIODE 1SS202-1			
D303	8-719-107-94	DIODE 1SS202-1			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D501	8-719-200-77	(W230:US,Canadian,AEP ,E/W233/W235) .....DIODE 10E2N
D502	8-719-200-77	(W230:US,Canadian,AEP ,E/W233/W235) .....DIODE 10E2N
D503	8-719-200-77	(W230:US,Canadian,AEP ,E/W233/W235) .....DIODE 10E2N
D504	8-719-200-77	(W230:US,Canadian,AEP ,E/W233/W235) .....DIODE 10E2N
D505	8-719-910-61	DIODE HZ6A1L
D506	8-719-910-64	(W230/W233)...DIODE HZ6B1L
D590	8-719-502-20	(W230:UK).....DIODE S2VB20
D701	8-719-107-94	DIODE 1SS202-1
D702	8-719-107-94	DIODE 1SS202-1
D703	8-719-107-94	DIODE 1SS202-1
D704	8-719-107-94	DIODE 1SS202-1
D705	8-719-107-94	DIODE 1SS202-1
D706	8-719-107-94	DIODE 1SS202-1
D707	8-719-107-94	DIODE 1SS202-1
D708	8-719-107-94	DIODE 1SS202-1
D709	8-719-107-94	DIODE 1SS202-1
D710	8-719-107-94	DIODE 1SS202-1
D711	8-719-107-94	DIODE 1SS202-1
D712	8-719-107-94	DIODE 1SS202-1
D713	8-719-107-94	DIODE 1SS202-1
D714	8-719-107-94	DIODE 1SS202-1
D716	8-719-107-94	DIODE 1SS202-1
D717	8-719-107-94	DIODE 1SS202-1
D718	8-719-107-94	DIODE 1SS202-1
D719	8-719-107-94	DIODE 1SS202-1
D725	8-719-107-94	DIODE 1SS202-1
D726	8-719-107-94	(W230/W233)...DIODE 1SS202-1
D728	8-719-107-94	DIODE 1SS202-1
D761	8-719-302-74	DIODE SEL2210W-C
D762	8-719-302-74	DIODE SEL2210W-C
D763	8-719-302-74	DIODE SEL2210W-C
IC301	8-759-602-01	IC M5220P
IC302	8-759-602-01	IC M5220P
IC303	8-752-018-70	IC CX20187
IC305	8-759-145-58	IC UPC4558C
IC306	8-759-140-66	IC UPD4066BC
IC308	8-759-600-02	(W230/W233)...IC M5218L
IC701	8-759-140-11	IC UPD4011BC
IC702	8-759-140-11	IC UPD4011BC
IC703	8-759-140-69	IC UPD4069UBC
IC801	8-752-321-65	IC CXD1017Q
J301	1-507-908-11	JACK, PIN 4P (LINE IN/OUT)
J302	1-563-249-11	(W230/W233)...JACK, LARGE TYPE (HEADPHONES)
L101	1-408-923-00	MICRO INDUCTOR 8.2MMH
L102	1-408-919-11	MICRO INDUCTOR 3.9MMH
L103	1-408-929-00	MICRO INDUCTOR 27MMH
L201	1-408-923-00	MICRO INDUCTOR 8.2MMH
L202	1-408-919-11	MICRO INDUCTOR 3.9MMH
L203	1-408-929-00	MICRO INDUCTOR 27MMH
LCD801	1-520-488-11	METER, LEVEL
LPF101	1-231-388-00	FILTER, LOW PASS
LPF201	1-231-388-00	FILTER, LOW PASS

ELECTRICAL PARTS

Ref.No.	Part No.	Description
PL801	1-518-596-11	LAMP, PILOT (6V/150mA)
PL802	1-518-596-11	LAMP, PILOT (6V/150mA)
Q101	8-729-606-33	TRANSISTOR 2SC2603F
Q102	8-729-606-33	TRANSISTOR 2SC2603F
Q103	8-729-606-33	(W230/W235)...TRANSISTOR 2SC2603F
Q104	8-729-606-33	TRANSISTOR 2SC2603F
Q105	8-729-606-33	TRANSISTOR 2SC2603F
Q106	8-729-606-33	TRANSISTOR 2SC2603F
Q107	8-729-606-33	TRANSISTOR 2SC2603F
Q201	8-729-606-33	TRANSISTOR 2SC2603F
Q202	8-729-606-33	TRANSISTOR 2SC2603F
Q203	8-729-606-33	(W230/W235)...TRANSISTOR 2SC2603F
Q204	8-729-606-33	TRANSISTOR 2SC2603F
Q205	8-729-606-33	TRANSISTOR 2SC2603F
Q206	8-729-606-33	TRANSISTOR 2SC2603F
Q207	8-729-606-33	TRANSISTOR 2SC2603F
Q301	8-729-900-89	TRANSISTOR DTC144ES
Q303	8-729-117-54	TRANSISTOR 2SA1175
Q304	8-729-117-54	TRANSISTOR 2SA1175
Q305	8-729-117-54	TRANSISTOR 2SA1175
Q306	8-729-606-33	TRANSISTOR 2SC2603F
Q307	8-729-178-54	TRANSISTOR 2SC2785
Q308	8-729-194-57	TRANSISTOR 2SC945-P
Q309	8-729-194-57	TRANSISTOR 2SC945-P
Q310	8-729-117-54	TRANSISTOR 2SA1175
Q501	8-729-107-25	TRANSISTOR 2SD1585-L
Q502	8-729-111-67	TRANSISTOR 2SB1094-L
Q503	8-729-178-54	TRANSISTOR 2SC2785
Q504	8-729-117-54	TRANSISTOR 2SA1175
Q505	8-729-178-54	TRANSISTOR 2SC2785
Q506	8-729-117-54	TRANSISTOR 2SA1175
Q701	8-729-606-33	TRANSISTOR 2SC2603F
Q702	8-729-801-83	TRANSISTOR 2SB1013
Q704	8-729-900-65	TRANSISTOR DTA144ES
Q705	8-729-900-65	TRANSISTOR DTA144ES
Q706	8-729-900-65	TRANSISTOR DTA144ES
R101	1-247-889-00	CARBON 270K 5% 1/6W
R102	1-249-405-11	CARBON 100 5% 1/6W
R103	1-247-882-00	CARBON 130K 5% 1/6W
R104	1-247-849-00	CARBON 5.6K 5% 1/6W
R105	1-249-419-11	CARBON 1.5K 5% 1/6W
R106	1-247-841-00	CARBON 2.7K 5% 1/6W
R107	1-247-887-00	CARBON 220K 5% 1/6W
R108	1-247-889-00	CARBON 270K 5% 1/6W
R109	1-249-405-11	CARBON 100 5% 1/6W
R110	1-247-882-00	CARBON 130K 5% 1/6W
R111	1-247-849-00	CARBON 5.6K 5% 1/6W
R112	1-249-433-11	CARBON 22K 5% 1/6W
R113	1-247-843-00	CARBON 3.3K 5% 1/6W
R114	1-247-851-00	CARBON 6.8K 5% 1/6W
R115	1-247-840-00	CARBON 2.4K 5% 1/6W
R116	1-247-846-00	CARBON 4.3K 5% 1/6W
R117	1-247-822-00	CARBON 430 5% 1/6W
R118	1-247-851-00	CARBON 6.8K 5% 1/6W
R119	1-249-415-11	CARBON 680 5% 1/6W
R120	1-249-421-11	CARBON 2.2K 5% 1/6W
R121	1-247-831-00	CARBON 1K 5% 1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R122	1-249-434-11	CARBON	27K	5%	1/6W	
R123	1-247-843-00	CARBON	3.3K	5%	1/6W	
R128	1-249-421-11	CARBON	2.2K	5%	1/6W	
R130	1-249-433-11	CARBON	22K	5%	1/6W	
R131	1-249-429-11	(W230/W233)...CARBON	10K	5%	1/6W	
R132	1-247-831-00	(W230/W233)...CARBON	1K	5%	1/6W	
R133	1-247-857-00	(W230/W233)...CARBON	12K	5%	1/6W	
R134	1-249-429-11	(W230/W233)...CARBON	10K	5%	1/6W	
R135	1-247-815-00	(W230/W233)...CARBON	220	5%	1/6W	
R136	1-249-429-11	CARBON	10K	5%	1/6W	
R137	1-247-849-00	CARBON	5.6K	5%	1/6W	
R138	1-247-851-00	CARBON	6.8K	5%	1/6W	
R139	1-249-434-11	CARBON	27K	5%	1/6W	
R140	1-249-435-11	CARBON	33K	5%	1/6W	
R141	1-247-841-00	CARBON	2.7K	5%	1/6W	
R142	1-249-433-11	CARBON	22K	5%	1/6W	
R143	1-249-433-11	CARBON	22K	5%	1/6W	
R144	1-247-815-00	CARBON	220	5%	1/6W	
R145	1-247-817-00	CARBON	270	5%	1/6W	
R146	1-247-858-00	CARBON	13K	5%	1/6W	
R147	1-249-429-11	CARBON	10K	5%	1/6W	
R148	1-247-846-00	CARBON	4.3K	5%	1/6W	
R149	1-249-433-11	CARBON	22K	5%	1/6W	
R150	1-247-819-00	CARBON	330	5%	1/6W	
R151	1-247-858-00	CARBON	13K	5%	1/6W	
R152	1-247-837-00	CARBON	1.8K	5%	1/6W	
R153	1-247-845-00	CARBON	3.9K	5%	1/6W	
R154	1-247-846-00	CARBON	4.3K	5%	1/6W	
R155	1-247-887-00	CARBON	220K	5%	1/6W	
R156	1-247-887-00	CARBON	220K	5%	1/6W	
R157	1-247-857-00	CARBON	12K	5%	1/6W	
R159	1-249-435-11	CARBON	33K	5%	1/6W	
R161	1-247-843-00	CARBON	3.3K	5%	1/6W	
R162	1-249-429-11	CARBON	10K	5%	1/6W	
R164	1-247-819-00	CARBON	330	5%	1/6W	
R165	1-249-421-11	CARBON	2.2K	5%	1/6W	
R301	1-247-708-11	CARBON	470	5%	1/4W	
R302	1-247-708-11	CARBON	470	5%	1/4W	
R303	1-247-708-11	CARBON	470	5%	1/4W	
R304	1-247-708-11	CARBON	470	5%	1/4W	
R305	1-249-429-11	CARBON	10K	5%	1/6W	
R306	1-249-437-11	CARBON	47K	5%	1/6W	
R307	1-249-433-11	CARBON	22K	5%	1/6W	
R308	1-249-433-11	CARBON	22K	5%	1/6W	
R309	1-249-433-11	CARBON	22K	5%	1/6W	
R310	1-215-469-00	METAL	100K	1%	1/6W	
R311	1-247-815-00	CARBON	220	5%	1/6W	
R312	1-247-843-00	CARBON	3.3K	5%	1/6W	
R313	1-249-425-11	CARBON	4.7K	5%	1/6W	
R314	1-249-425-11	CARBON	4.7K	5%	1/6W	
R315	1-249-433-11	CARBON	22K	5%	1/6W	
R316	1-249-433-11	CARBON	22K	5%	1/6W	
R317	1-249-433-11	CARBON	22K	5%	1/6W	
R318	1-249-429-11	CARBON	10K	5%	1/6W	
R319	1-212-857-91	FUSIBLE	10	5%	1/4W	F
R320	1-249-435-11	CARBON	33K	5%	1/6W	
R322	1-249-429-11	CARBON	10K	5%	1/6W	

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R323	1-247-887-00	CARBON	220K	5%	1/6W
R324	1-249-433-11	(W235)....CARBON	22K	5%	1/6W
R501	1-247-831-00	CARBON	1K	5%	1/6W
R502	1-247-831-00	CARBON	1K	5%	1/6W
R503	1-247-823-00	CARBON	470	5%	1/6W
R504	1-247-823-00	CARBON	470	5%	1/6W
R505	1-247-831-00	CARBON	1K	5%	1/6W
R506	1-247-843-00	CARBON	3.3K	5%	1/6W
R507	1-247-841-00	CARBON	2.7K	5%	1/6W
R508	1-249-421-11	(W230/W235)...CARBON	2.2K	5%	1/6W
R509	1-247-831-00	(W230/W235)...CARBON	1K	5%	1/6W
R510	1-247-831-00	CARBON	1K	5%	1/6W
R511	1-217-422-00	(W235).....FUSIBLE	1	5%	1/2W
R511	1-244-801-00	(W230/W233:US)...CARBON	1	5%	1/2W
R701	1-249-429-11	CARBON	10K	5%	1/6W
R702	1-249-437-11	CARBON	47K	5%	1/6W
R703	1-249-437-11	CARBON	47K	5%	1/6W
R704	1-249-435-11	CARBON	33K	5%	1/6W
R705	1-249-437-11	CARBON	47K	5%	1/6W
R706	1-247-895-00	CARBON	470K	5%	1/6W
R707	1-247-875-00	CARBON	68K	5%	1/6W
R708	1-249-435-11	CARBON	33K	5%	1/6W
R709	1-247-875-00	CARBON	68K	5%	1/6W
R710	1-249-437-11	CARBON	47K	5%	1/6W
R711	1-249-435-11	CARBON	33K	5%	1/6W
R712	1-249-433-11	CARBON	22K	5%	1/6W
R713	1-249-419-11	CARBON	1.5K	5%	1/6W
R714	1-249-437-11	CARBON	47K	5%	1/6W
R715	1-247-887-00	CARBON	220K	5%	1/6W
R717	1-247-891-00	CARBON	330K	5%	1/6W
R718	1-249-435-11	CARBON	33K	5%	1/6W
R719	1-247-889-00	CARBON	270K	5%	1/6W
R720	1-249-435-11	CARBON	33K	5%	1/6W
R721	1-249-435-11	CARBON	33K	5%	1/6W
R722	1-249-435-11	CARBON	33K	5%	1/6W
R723	1-249-435-11	CARBON	33K	5%	1/6W
R724	1-249-435-11	CARBON	33K	5%	1/6W
R725	1-249-435-11	CARBON	33K	5%	1/6W
R726	1-249-435-11	CARBON	33K	5%	1/6W
R727	1-247-833-00	CARBON	1.2K	5%	1/6W
R728	1-247-833-00	CARBON	1.2K	5%	1/6W
R729	1-247-833-00	CARBON	1.2K	5%	1/6W
R730	1-249-425-11	CARBON	4.7K	5%	1/6W
R731	1-249-425-11	CARBON	4.7K	5%	1/6W
R732	1-247-849-00	CARBON	5.6K	5%	1/6W
R734	1-249-429-11	CARBON	10K	5%	1/6W
R735	1-247-849-00	CARBON	5.6K	5%	1/6W
R737	1-249-429-11	CARBON	10K	5%	1/6W
R749	1-249-405-11	CARBON	100	5%	1/6W
R791	1-247-823-00	CARBON	470	5%	1/6W
R801	1-247-872-00	CARBON	51K	5%	1/6W
R802	1-249-437-11	CARBON	47K	5%	1/6W
R803	1-247-903-00	CARBON	1M	5%	1/6W
R851	1-247-872-00	CARBON	51K	5%	1/6W
R852	1-249-437-11	CARBON	47K	5%	1/6W
R853	1-247-903-00	CARBON	1M	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R891	1-247-893-00	CARBON	390K	5%	1/6W
R893	1-247-815-00	CARBON	220	5%	1/6W
R894	1-247-834-00	CARBON	1.3K	5%	1/6W
R895	1-249-441-11	CARBON	100K	5%	1/6W
RV101	1-228-989-00	RES, ADJ, CARBON 470			
RV102	1-228-989-00	RES, ADJ, CARBON 470			
RV103	1-228-994-00	RES, ADJ, CARBON 10K			
RV104	1-237-204-21	RES, VAR, SLIDE 20K			
RV201	1-228-989-00	RES, ADJ, CARBON 470			
RV202	1-228-989-00	RES, ADJ, CARBON 470			
RV203	1-228-994-00	RES, ADJ, CARBON 10K			
RV204	1-237-204-21	RES, VAR, SLIDE 20K			
RV701	1-228-993-00	RES, ADJ, CARBON 4.7K			
RV702	1-228-993-00	RES, ADJ, CARBON 4.7K			
RV703	1-228-993-00	RES, ADJ, CARBON 4.7K			
RV704	1-228-993-00	RES, ADJ, CARBON 4.7K			
S301	1-570-531-11	SWITCH, PUSH (2 KEY)(DOLBY NR)			
S302	1-570-655-11	SWITCH, PUSH (3 KEY)(TAPE)			
S303	1-554-033-00	SWITCH, SLIDE (RECORD/PLAYBACK)			
S501	1-570-103-11	(W230/W233)..SWITCH, PUSH(1 KEY)(POWER)			
S701	1-570-530-11	SWITCH, PUSH (2 KEY) (HIGH SPEED/NORMAL SPEED)			
S901 ⚠	1-570-307-11	(W230:E).....SWITCH, VOLTAGE CHANGE			
SPK101	1-235-186-00	ENCAPSULATED COMPONENT			
SPK201	1-235-186-00	ENCAPSULATED COMPONENT			
T301	1-433-303-11	TRANSFORMER, BIAS OSCILLATION			
T501 ⚠	1-448-497-11	(W230:E).....TRANSFORMER, POWER			
T501 ⚠	1-448-498-11	(W230:US,Canadian/W233:US) ...TRANSFORMER, POWER			
T501 ⚠	1-448-499-11	(W230:AEP,UK)...TRANSFORMER, POWER			
TP701	*1-564-505-31	PLUG, CONNECTOR 2P			

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-558-543-11	CORD, CONNECTION
3-332-447-01	(W230)...INDIVIDUAL CARTON
3-332-447-11	(W233)...INDIVIDUAL CARTON
3-332-448-01	(W230/W233)..CUSHION
3-701-630-00	(W230/W233)...BAG, POLYETHYLENE
3-703-450-01	(W230/W233:US)...INSTRUCTION
3-703-680-00	LABEL, CAUTION, SUB, NEW UL
3-703-713-41	STICKER, SONY SYMBOL (10)
3-765-169-11	(W230/W233:AEP,UK,E)...MANUAL, INSTRUCTION
3-765-169-21	(W230/W233:US,Canadian) ...MANUAL, INSTRUCTION
3-765-169-31	(W230/W233:Canadian)...MANUAL, INSTRUCTION
3-765-169-41	(W230/W233:AEP).....MANUAL, INSTRUCTION
4-876-352-00	(W230/W233)...SHEET, PROTECTION

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R891	1-247-893-00	CARBON 390K 5% 1/6W
R893	1-247-815-00	CARBON 220 5% 1/6W
R894	1-247-834-00	CARBON 1.3K 5% 1/6W
R895	1-249-441-11	CARBON 100K 5% 1/6W
RV101	1-228-989-00	RES, ADJ, CARBON 47Ω
RV102	1-228-989-00	RES, ADJ, CARBON 47Ω
RV103	1-228-994-00	RES, ADJ, CARBON 10K
RV104	1-237-204-21	RES, VAR, SLIDE 20K
RV201	1-228-989-00	RES, ADJ, CARBON 47Ω
RV202	1-228-989-00	RES, ADJ, CARBON 47Ω
RV203	1-228-994-00	RES, ADJ, CARBON 10K
RV204	1-237-204-21	RES, VAR, SLIDE 20K
RV701	1-228-993-00	RES, ADJ, CARBON 4.7K
RV702	1-228-993-00	RES, ADJ, CARBON 4.7K
RV703	1-228-993-00	RES, ADJ, CARBON 4.7K
RV704	1-228-993-00	RES, ADJ, CARBON 4.7K
S301	1-570-531-11	SWITCH, PUSH (2 KEY)(DOLBY NR)
S302	1-570-655-11	SWITCH, PUSH (3 KEY)(TAPE)
S303	1-554-033-00	SWITCH, SLIDE (RECORD/PLAYBACK)
S501	1-570-103-11	(W230/W233)..SWITCH, PUSH(1 KEY)(POWER)
S701	1-570-530-11	SWITCH, PUSH (2 KEY) (HIGH SPEED/NORMAL SPEED)
S901 ⚠	1-570-307-11	(W230:E).....SWITCH, VOLTAGE CHANGE
SPK101	1-235-186-00	ENCAPSULATED COMPONENT
SPK201	1-235-186-00	ENCAPSULATED COMPONENT
T301	1-433-303-11	TRANSFORMER, BIAS OSCILLATION
T501 ⚠	1-448-497-11	(W230:E).....TRANSFORMER, POWER
T501 ⚠	1-448-498-11	(W230:US,Canadian/W233:US) ...TRANSFORMER, POWER
T501 ⚠	1-448-499-11	(W230:AEP,UK)...TRANSFORMER, POWER
TP701 *	1-564-505-31	PLUG, CONNECTOR 2P

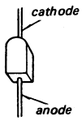
ACCESSORY & PACKING MATERIAL

Part No.	Description
1-558-543-11	CORD, CONNECTION
3-332-447-01	(W230)...INDIVIDUAL CARTON
3-332-447-11	(W233)...INDIVIDUAL CARTON
3-332-448-01	(W230/W233)..CUSHION
3-701-630-00	(W230/W233)...BAG, POLYETHYLENE
3-703-450-01	(W230/W233:US)...INSTRUCTION
3-703-680-00	LABEL, CAUTION, SUB, NEW UL
3-703-713-41	STICKER, SONY SYMBOL (10)
3-765-169-11	(W230/W233:AEP,UK,E)...MANUAL, INSTRUCTION
3-765-169-21	(W230/W233:US,Canadian) ...MANUAL, INSTRUCTION
3-765-169-31	(W230/W233:Canadian)...MANUAL, INSTRUCTION
3-765-169-41	(W230/W233:AEP).....MANUAL, INSTRUCTION
4-876-352-00	(W230/W233)...SHEET, PROTECTION

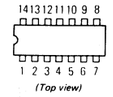
● Semiconductor Lead Layouts

2SA1175
2SC2785

CX20187

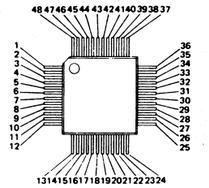


μPD4011BC
μPD4066BC
μPD4069UBC

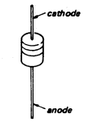


2SB1013
2SC945-P

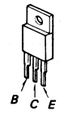
CXD1017Q



1SS202-1

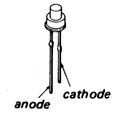


2SB1094-L
2SD1585-L



M5218L

SEL2210W



2SC2603F
DTA144ES
DTC144ES

M5220P
μPC4558C

SECTION 6
DIAGRAMS

4-1. MOUNTED DIAGRAM

— Conductor Side —

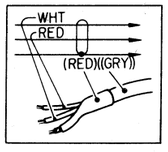
● See page 27 for Semiconductor Lead Layouts.

● SEMICONDUCTOR LOCATION

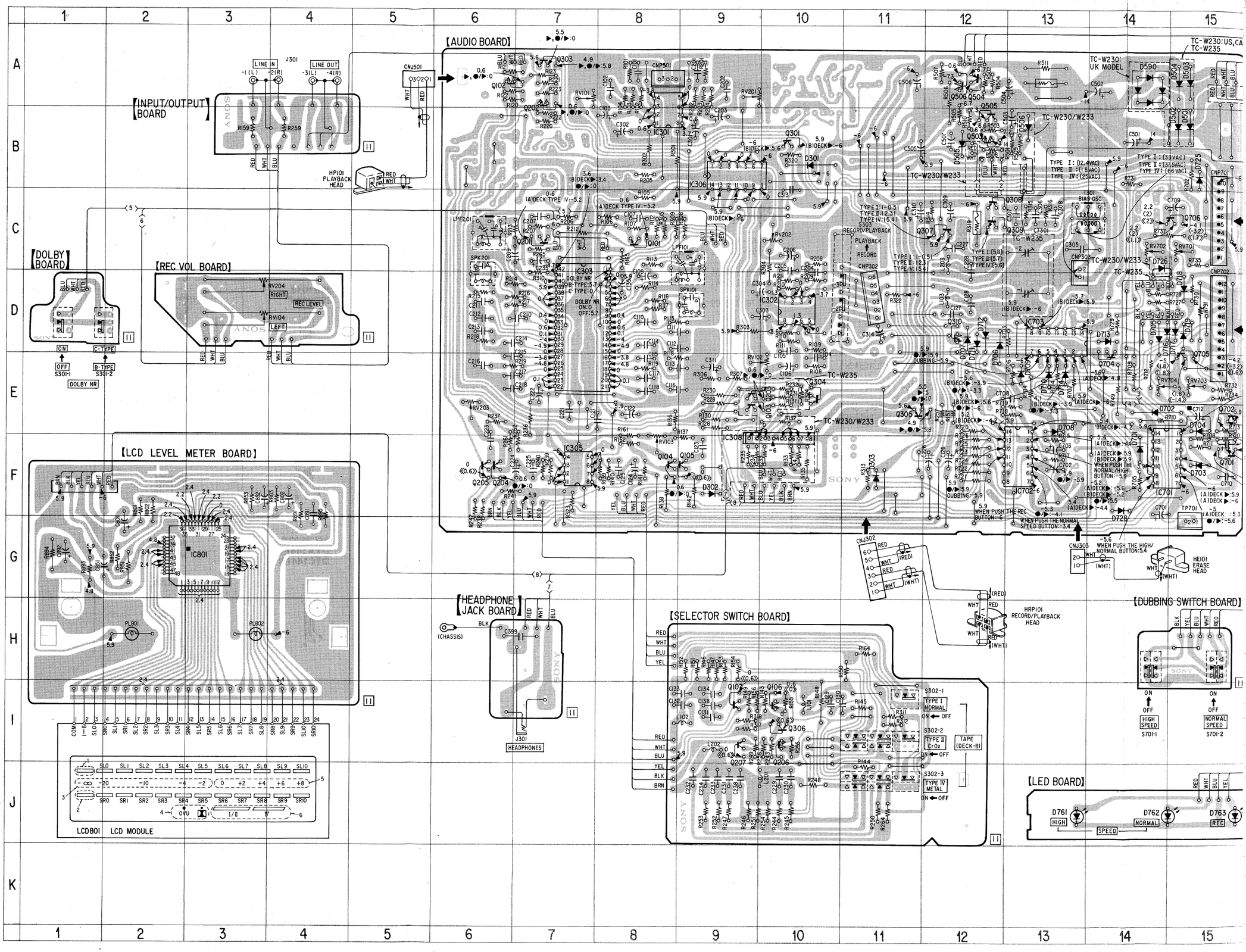
Ref. No.	Location	Ref. No.	Location
D301	B-10	Q101	C-8
D302	F-9	Q102	A-6
D303	F-11	Q103	E-10
D501	B-15	Q104	F-8
D502	B-15	Q105	F-9
D503	A-15	Q106	I-10
D504	A-15	Q107	I-9
D505	B-12	Q201	C-7
D506	B-13	Q202	A-7
D590	A-14	Q203	E-10
D701	F-14	Q204	F-6
D702	E-14	Q205	F-6
D703	F-15	Q206	I-10
D704	E-15	Q207	I-9
D705	D-14	Q301	B-10
D706	E-12	Q303	A-7
D707	D-12	Q304	E-10
D708	E-13	Q305	E-11
D709	E-13	Q306	I-10
D710	E-13	Q307	C-12
D711	D-12	Q308	C-12
D712	D-12	Q309	C-13
D713	D-14	Q310	D-12
D714	E-13	Q501	C-17
D716	D-14	Q502	A-17
D717	D-15	Q503	B-12
D718	D-15	Q504	A-12
D719	D-15	Q505	A-12
D725	B-15	Q506	A-12
D726	C-14	Q701	F-15
D728	F-14	Q702	E-15
D761	J-13	Q704	E-14
D762	J-14	Q705	D-15
D763	J-15	Q706	C-15
IC301	B-8		
IC302	D-10		
IC303	D-7		
IC305	F-7		
IC306	B-9		
IC308	F-9		
IC701	F-14		
IC702	F-13		
IC703	D-13		
IC801	G-3		

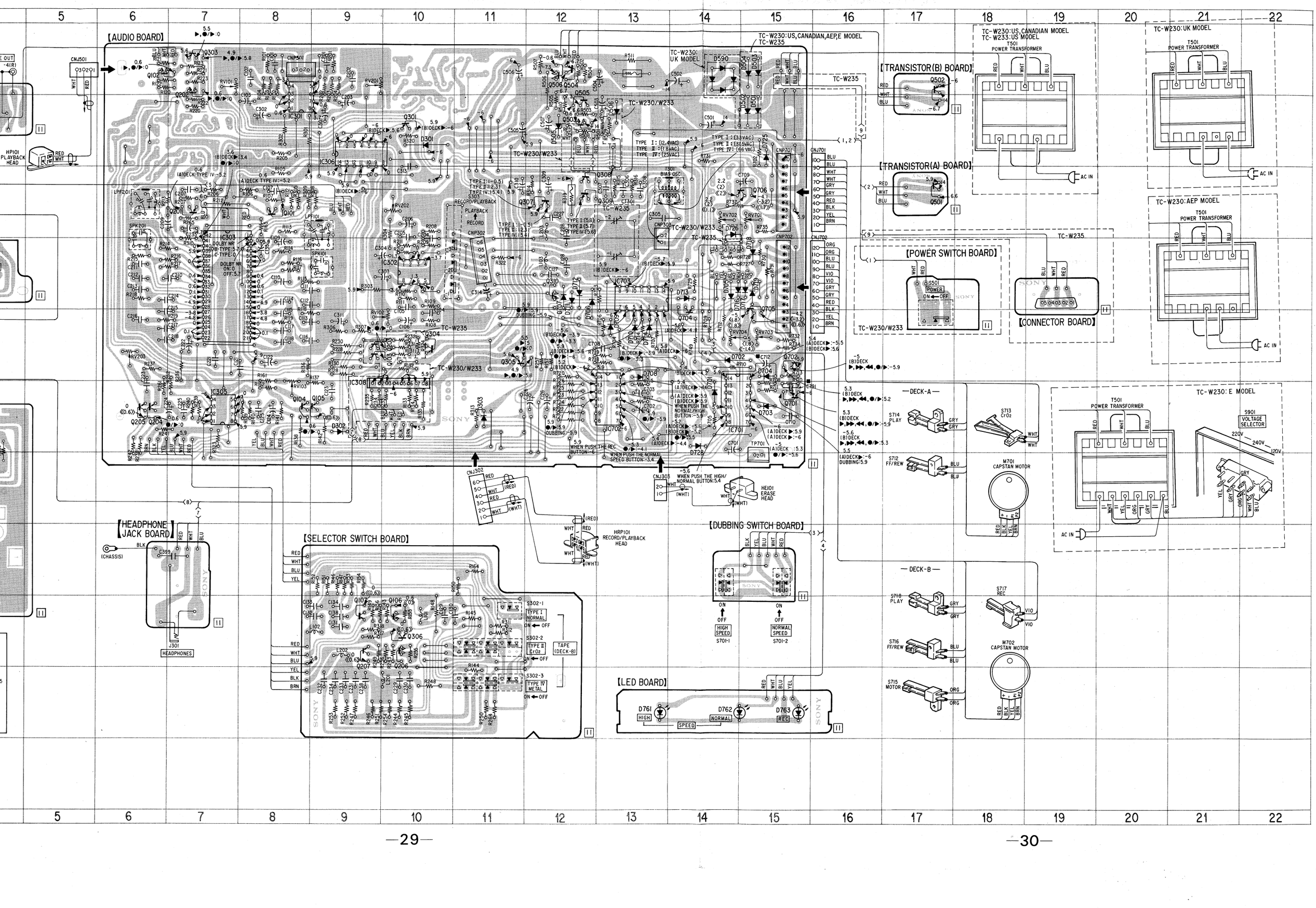
Note:

- Color code or sleeving over the end of the jacket.



- ○— : parts extracted from the component side.
- ■ : part mounted on the conductor side.
- ⊡— : indicates side identified with part number.




【AUDIO BOARD】
TC-W230:US,CANADIAN,AEP,E MODEL
TC-W235
TC-W230:
UK MODEL
TC-W230/W233
TC-W230/W235
【TRANSISTOR(B) BOARD】
【TRANSISTOR(A) BOARD】
TC-W230:US,CANADIAN MODEL
TC-W233:US MODEL
T501
POWER TRANSFORMER
TC-W230:UK MODEL
TC-W230:AEP MODEL
AC IN
【POWER SWITCH BOARD】
【CONNECTOR BOARD】
S501
POWER
ON ← OFF
CNJ701
CNJ702
CNP701
CNP702
CNP303
CNP302
CNJ302
CNJ303
HEI01
ERASE HEAD
HRP101
RECORD/PLAYBACK HEAD
HPI01
PLAYBACK HEAD
CNJ501
J301
HEADPHONES
【HEADPHONE JACK BOARD】
【SELECTOR SWITCH BOARD】
S302-1
TYPE I NORMAL
S302-2
TYPE II CrO2
S302-3
TYPE IV METAL
TAPE (DECK-B)
【DUBBING SWITCH BOARD】
S701-1
HIGH SPEED
S701-2
NORMAL SPEED
【LED BOARD】
D761
HIGH
D762
NORMAL
D763
REC
SPEED
— DECK-A —
— DECK-B —
S714
PLAY
S713
CrO2
S712
FF/REW
S717
REC
S716
PLAY
S716
FF/REW
S715
MOTOR
M701
CAPSTAN MOTOR
M702
CAPSTAN MOTOR
TC-W230:E MODEL
S901
VOLTAGE SELECTOR
220V
240V
120V
IC301
IC302
IC303
DOLBY NR
IC305
IC306
IC308
IC701
IC702
IC703
Q301
Q303
Q304
Q305
Q306
Q307
Q308
Q309
Q501
Q502
Q504
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Q718
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Q720
Q721
Q722
Q723
Q724
Q725
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Q727
Q728
D301
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D725
D726
D727
D728
BIAS OSC
LPF201
LPF101
SPK201
SPK101
TP701
C399
R399
R501
R502
R503
R504
R505
R506
R507
R508
R509
R510
R511
R731
R732
R733
R734
R735
RV201
RV202
RV203
RV701
RV702
RV703
RV704
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RV103
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L531
L532
L533
L534
L535
L536
L537
L538
L539
L540

[INPUT/OUTPUT BOARD]
[TRANSISTOR(A) BOARD]
[REC VOL BOARD]
[LCD LEVEL METER BOARD]

J301
LINE OUT
LINE IN
-1 R
-2 -3 L R
-4 L

Q102
2SC2785
LINE MUTING

IC303
LLS

Q303 Rch
Q304
Rch
Q102
D506

R259 33K
R159 33K
RV104 20K
REC LEVEL
R-CH
L (A)

Q501
2SD1585
VOLT. REG

CNP502
SYSTEM CONTROL

D501~504
10E2
RECT

D505
HZ6AIL

D501 D502 D503 D504

R123 3.3K
R121 1K
R122 2.7K
R120 2.2K
R165 2.2K
C135 1/50
C122 1/50
C116 0.047
C117 0.0068
C118 0.01
R119 680
R128 2.2K
R130 22K
R323 220K
R324 22K
D303
D302

C505 1000/6.3
R506 3.3K
R505 1K
R510 1K
C507 22/25
C503 100/25
C501 2200/25
R501 1K
R503 470
Q503
Q505
C506 1000/6.3
R507 2.7K
C504 100/25
R504 470
C502 2200/25
R502 1K
R511 1 (1/2W)
Q506
Q504

Q505
2SC2785
VOLT. REG.

Q503
2SC2785
VOLT. REG

Q506
2SA1175
ERROR DETECTOR

Q504
2SA1175
VOLT. REG

Q304
2SA1175
METER MUTE LOGIC SWITCH

Q502
2SB1094
VOLT. REG.

CNP801

R893 220
R894 1.3K
C892 47/10
R802 47K
R852 47K
R801 51K
R851 51K

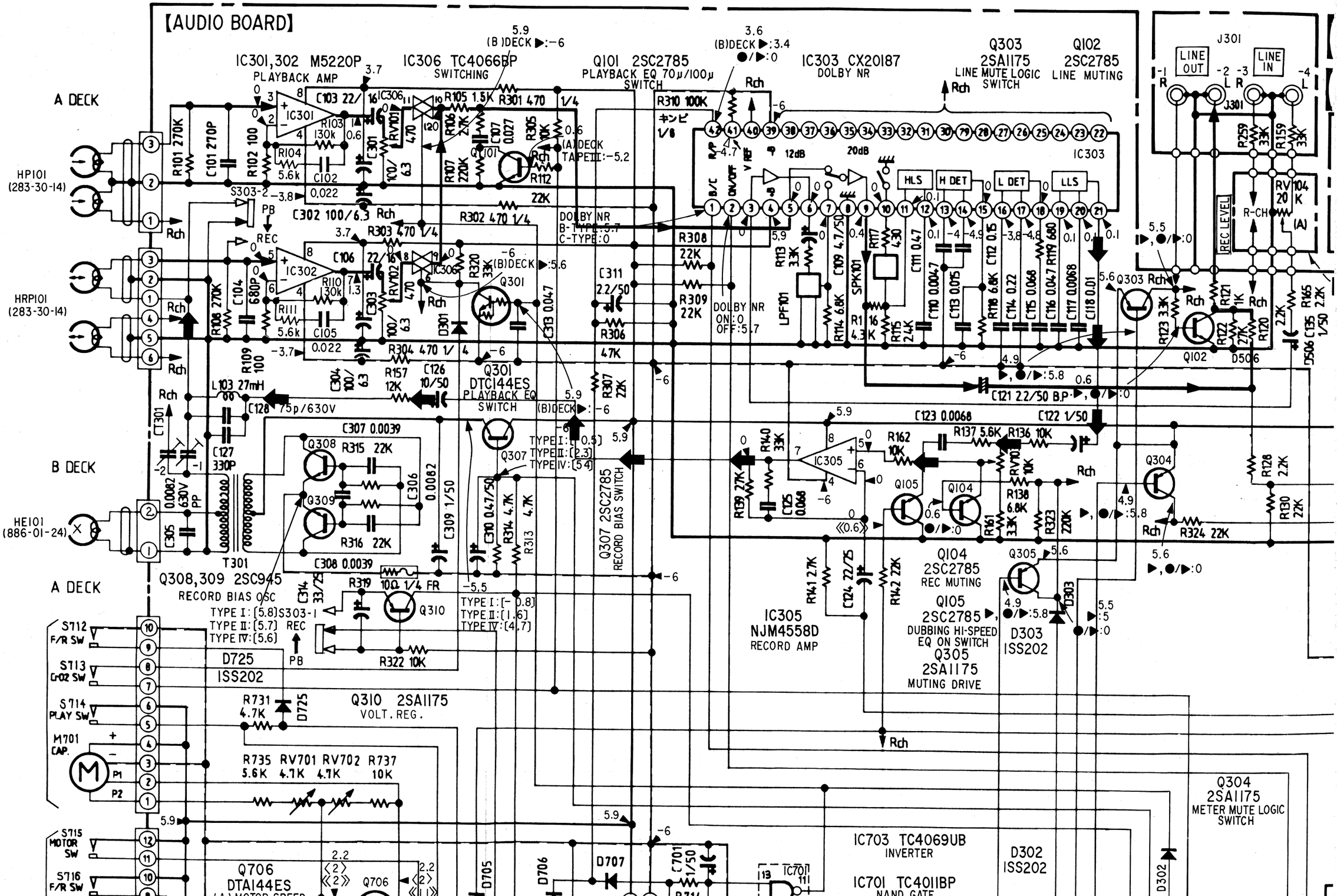
LCD801
SL0 SL1 SL2 SL3 SL4 SL5 SL6 SL7 SL8 SL9 SL10
-∞ -20 -10 -4 -2 0 +2 +4 +6 +8
SR0 SR1 SR2 SR3 SR4 SR5 SR6 SR7 SR8 SR9 SR10
OVU
I/II
IV
COM SR0 SL0 SL1 SR1 SL2 SR2 SL3 SR3 SL4 SR4 SL5 SR5 SL6 SR6 SL7 SR7 SL8 SR8 SL9 SR9 SL10 SR10

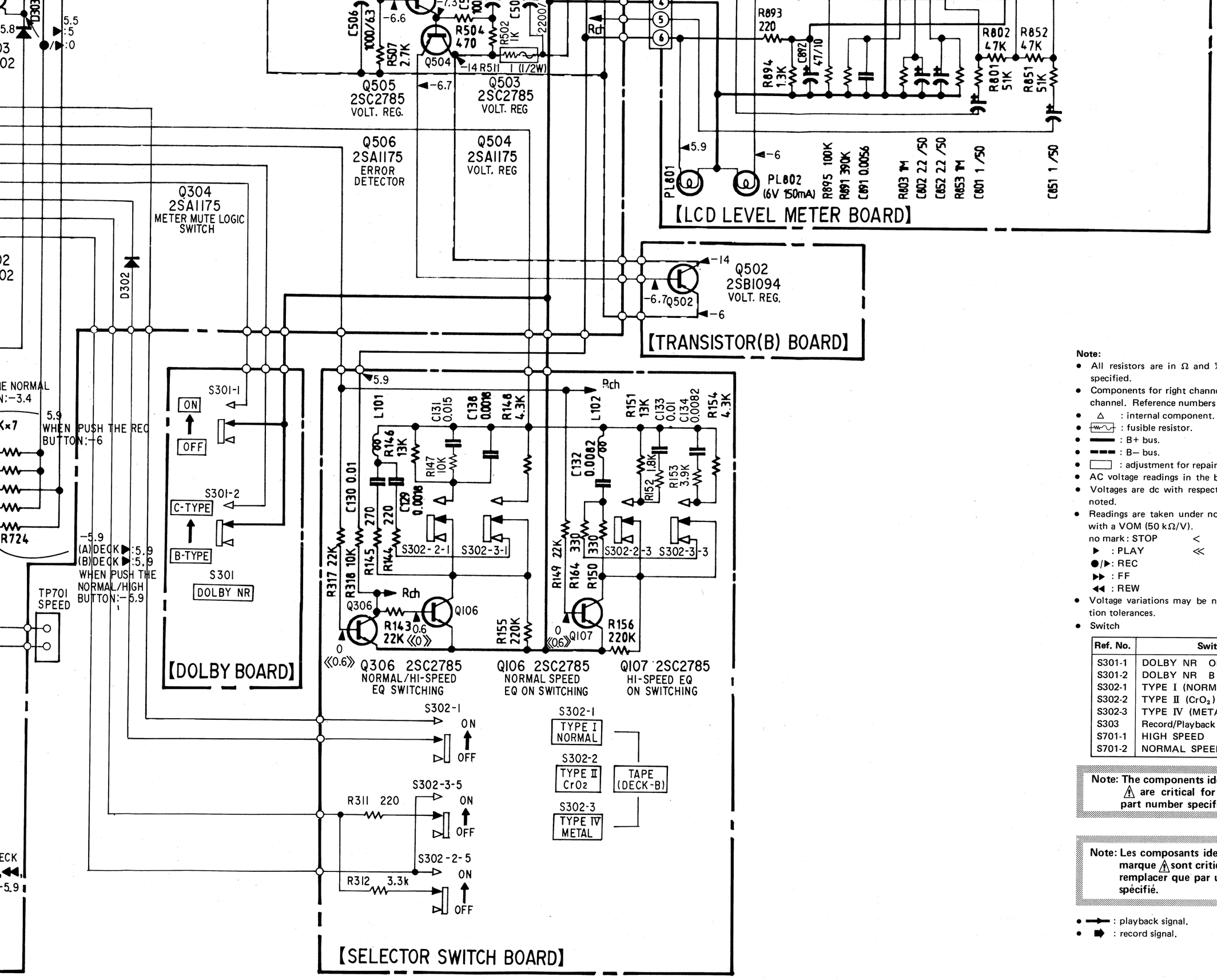
IC801
CXD1017
LCD DRIVE
I COM
COM
VDD
R IN
B OUT
L IN
R OUT
L OUT
CLK
VSS
RES

PL801
PL802
(6V 150mA)
R895 100K
R891 390K
C891 0.0056
R803 1M
C802 22/50
C852 22/50
R853 1M
C801 1/50
C851 1/50

TC-W235

SCHEMATIC DIAGRAM





Note:

- All resistors are in Ω and ¼ W or less unless otherwise specified.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- △ : internal component.
- : fusible resistor.
- : B+ bus.
- : B− bus.
- : adjustment for repair.
- AC voltage readings in the bias oscillator with a VTVM.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (50 kΩ/V).
  no mark : STOP < >: NORMAL SPEED
  ▶ : PLAY ≪ ≫: HIGH SPEED
  ●/▶: REC
  ▶▶ : FF
  ◀◀ : REW
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S301-1	DOLBY NR ON/OFF	OFF
S301-2	DOLBY NR B TYPE/C TYPE	B TYPE
S302-1	TYPE I (NORMAL)	OFF
S302-2	TYPE II (CrO_2)	OFF
S302-3	TYPE IV (METAL)	OFF
S303	Record/Playback	Playback
S701-1	HIGH SPEED	OFF
S701-2	NORMAL SPEED	OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- : playback signal.
- : record signal.

9-952-172-11

Sony Corporation

English
86E0585-1
Printed in Japan
© 1986

A DECK

B DECK

Q308,309 2SC945
RECORD BIAS OSC
TYPE I:[5.8] S303-1
TYPE II:[5.7] REC
TYPE IV:[5.6]
PB

C314 33/25

R319 100Ω 1/4 FR

Q310

R322 10K

D725
ISS202

R731 4.7K

Q310 2SA1175
VOLT. REG.

S712 F/R SW
S713 CrO2 SW
S714 PLAY SW
M701 CAP.
P1
P2

R735 5.6K
RV701 4.7K
RV702 4.7K
R737 10K

S715 MOTOR SW
S716 F/R SW
S717 REC SW
S718 PLAY SW
M702 CAP.

R732 5.6K
RV703 4.7K
RV704 4.7K
R734 10K

Q706
DTA144ES
(A) MOTOR SPEED SWITCH

C709 2.2/50

Q705
DTA144ES
(B) MOTOR SPEED SWITCH

S701-1
HIGH SPEED
ON ← OFF

S701-2
NORMAL SPEED
ON ← OFF

【DUBBING SWITCH BOARD】

R730 4.7K

D716—719
ISS202

D716
D717
D719
D718

R791 470

R727
R728
R729

D761 HIGH
D762 NORMAL
D763 REC
SPEED

D761—763
SEL2210W
【LED BOARD】

C791 4.7/50
R701 10K
R702 47K

D705
D706
D707
D708
D709
D710
D711
D712
D713

R706 470K
R705 220K

C701 1/50
R714 47K

IC703
IC701 TC4069UB
INVERTER

IC701 TC4011BP
NAND GATE

IC702 TC4011BP
NAND GATE

D705—713
ISS202

C702 33/50
R717 330K

R720 33K×7
R721
R722
R723
R724
R725
R726

C703 3.3/50
R708 33K
R719 270K
C708 1000P

Q704
DTA144ES
HI SPEED MOTOR SWITCH

R749 100Ω

R703 4.7K
R704 33K
R705 4.7K
D728

C712 4.7/50
R707 68K
D701

R709 68K
D714

R712 22K
R711 33K
D703

D704
R710 4.7K

C710 10000P
D702

Q701
R713 1.5K

Q702

IC305
NJM4558D
RECORD AMP

R141 2.2K
C124 2.2/50
R142 2.2K

REC MUTING

Q105
2SC2785
DUBBING HI-SPEED EQ ON SWITCH

Q305
2SA1175
MUTING DRIVE

D303
ISS202

Rch

Q304
2SA1175
METER MUTE LOGIC SWITCH

D302
ISS202

S301-1
ON
OFF

S301-2
C-TYPE
B-TYPE

S301
DOLBY NR

【DOLBY BOA

TP701 SPEED

Q701 Q702
2SC2785 2SB1013
MOTOR ON PREDRIVER

D701-704, 714, 728
ISS202

WHEN PUSH THE NORMAL SPEED BUTTON:−3.4

WHEN PUSH THE REC BUTTON:−6

WHEN PUSH THE HIGH/NORMAL BUTTON:5.4

WHEN PUSH THE NORMAL/HIGH BUTTON:−5.9

DUBBING:−5.9

DUBBING:5.4

DUBBING:5.9

SONY

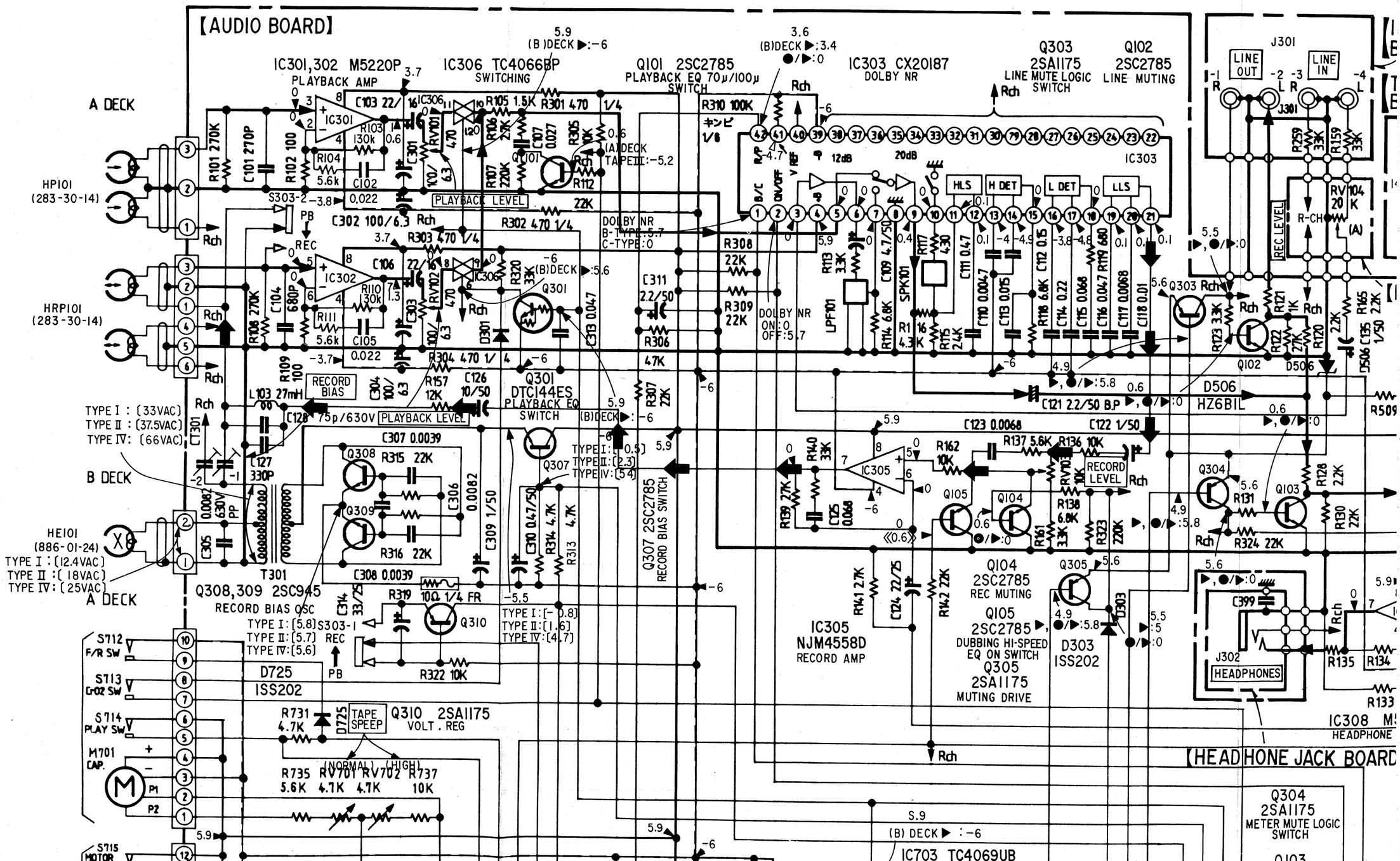
STEREO CASSETTE DECK

TC-W230/W233/W235

US Model
Canadian Model
AEP Model
UK Model
E Model

TC-W230/W233

SCHEMATIC DIAGRAM



7 8 9 10 11 12 13 14 15

A B C D E F

【INPUT/OUTPUT BOARD】

【TRANSISTOR(A) BOARD】

【POWER SWITCH BOARD】

US, CANADIAN MODEL

J301 LINE OUT -1 R -2 L -3 R LINE IN -4 L

R259 33K R159 33K

RV104 20K (A) REC LEVEL R-CH

Q501 2SD1585 VOLT. REG

S501 POWER ON ← OFF

T501 POWER AC IN T.P

LCD801

SL0 SL1 SL2 SL3 SL4 SL5 SL6 SL7 SL8 SL9 SL10

-∞ -20 -10 -4 -2 0 +2 +4 +6 +8

SR0 SR1 SR2 SR3 SR4 SR5 SR6 SR7 SR8 SR9 SR10

0VU I/II IV

IC801 CXD1017 LCD DRIVE

CNP801

Q102 2SC2785 MIC LINE MUTING

IC303

LLS

【REC VOL BOARD】

D505 HZ6AIL

D501~504 10E2(US,CANADIAN,AEP,E MODEL)

D590 S2VB20 (UK MODEL) RECT

D506 HZ6BIL

Q303 Rch Q102 Q304 Q103

RECORD LEVEL

R323 220K R324 22K R128 2.2K R130 22K R131

C399 IC308 J302 HEADPHONES R135 R134 R133

IC308 M5218L HEADPHONE AMP

【HEADPHONE JACK BOARD】

Q505 2SC2785 VOLT. REG.

Q503 2SC2785 VOLT. REG

Q506 2SA1175 ERROR DETECTOR

Q504 2SA1175 VOLT. REG

Q304 2SA1175 METER MUTE LOGIC SWITCH

R893 220 R894 1.3K C892 47/10 R802 47K R852 47K R801 51K R851 51K

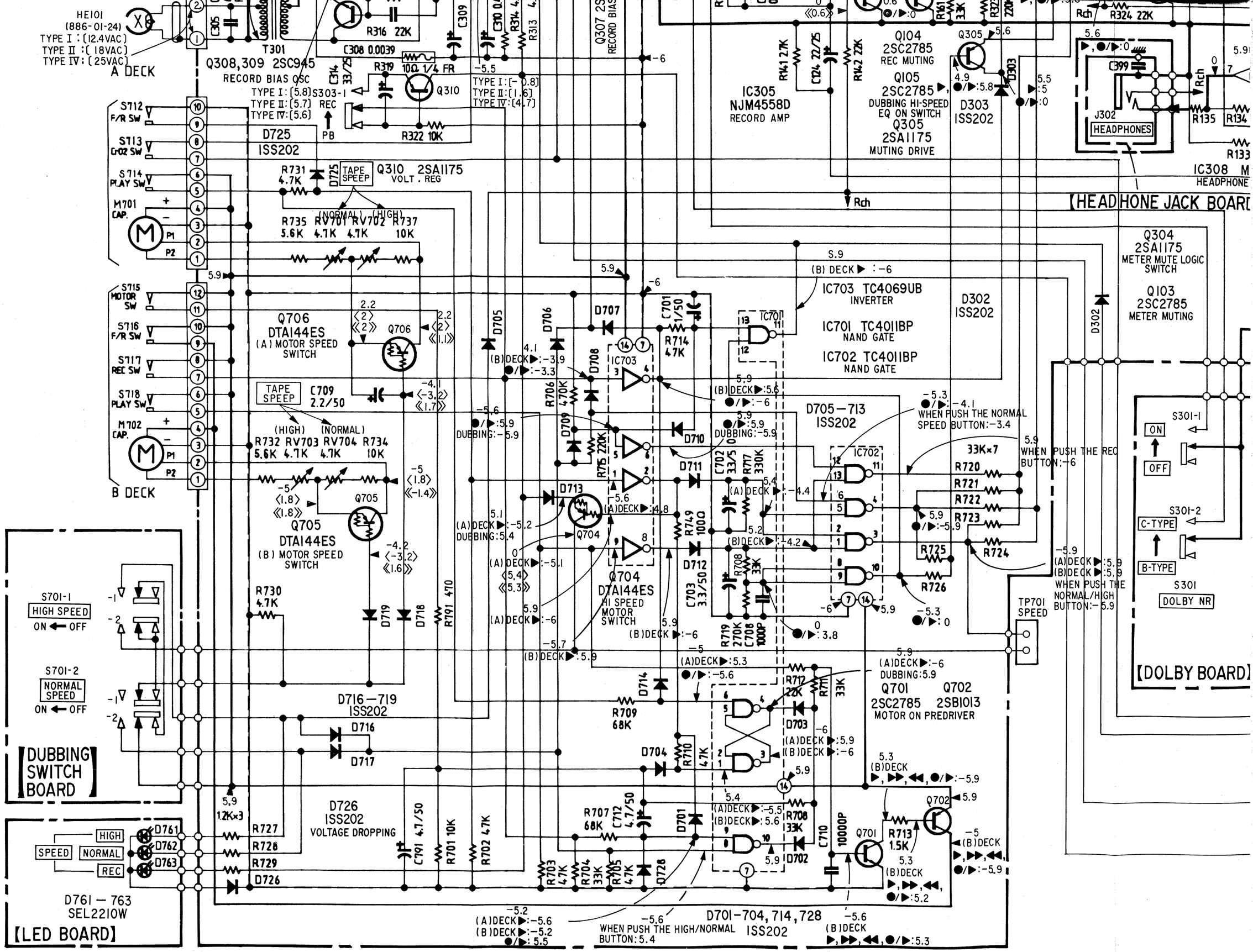
CANADIAN,AEP,UK,E MODEL

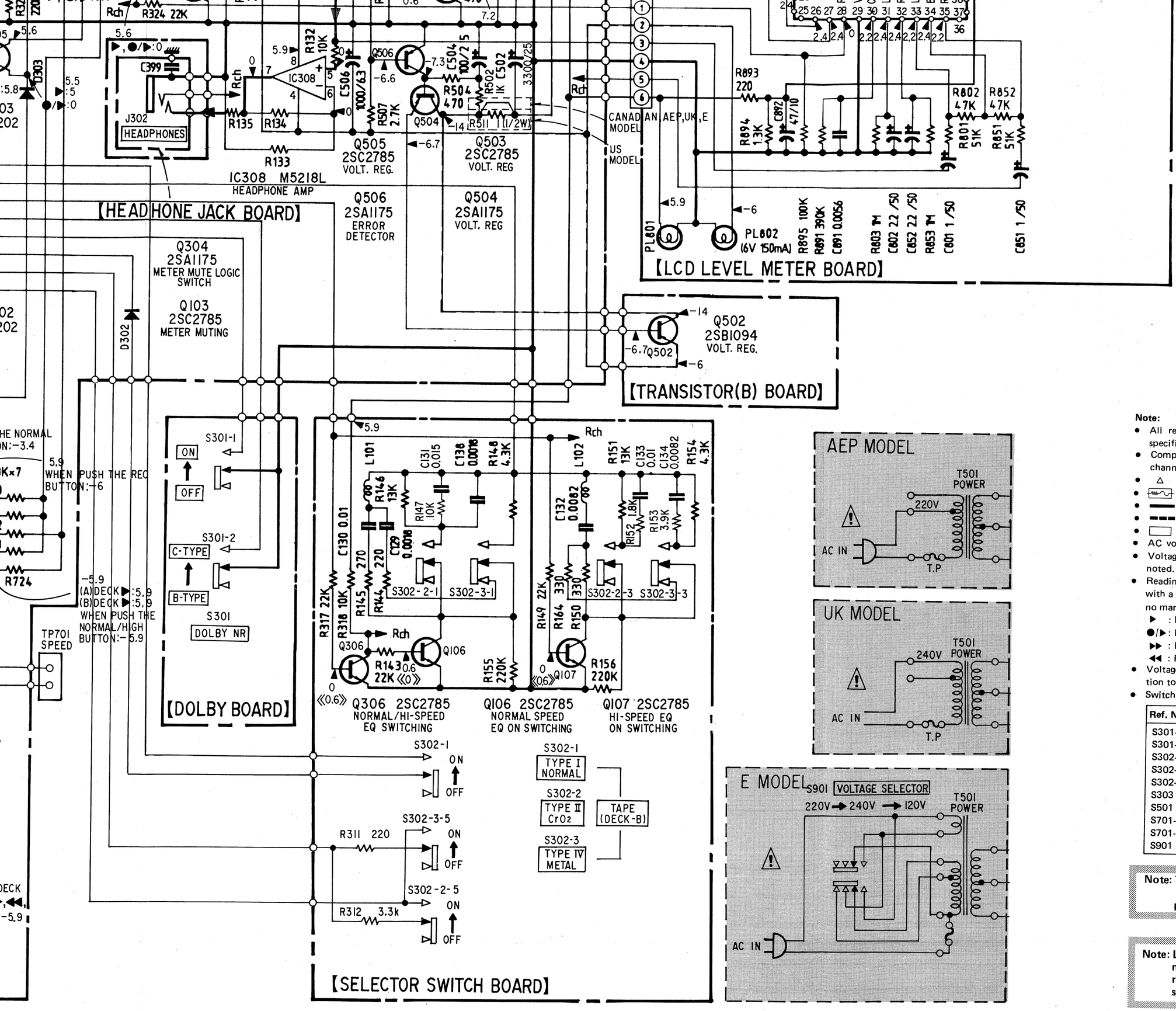
US MODEL

PL801 PL802 (6V 150mA)

R895 100K R891 390K C891 0.0056 R803 1M C802 22/50 C852 22/50 R853 1M C801 1/50 C851 1/50

【LCD LEVEL METER BOARD】


HEI01
(886-01-24)
TYPE I : (12.4VAC)
TYPE II : (18VAC)
TYPE IV: (25VAC)
A DECK
T301
Q308,309 2SC945
RECORD BIAS OSC
TYPE I: (5.8)
TYPE II: (5.7)
TYPE IV: (5.6)
S303-1
REC
PB
Q310
R316 22K
C308 0.0039
R319 100 1/4 FR
R322 10K
D725
ISS202
TAPE SPEED
Q310 2SA1175
VOLT. REG
R731 4.7K
R735 5.6K
RV701 4.7K
RV702 4.7K
R737 10K
(NORMAL) (HIGH)
S712 F/R SW
S713 CrO2 SW
S714 PLAY SW
M701 CAP.
S715 MOTOR SW
S716 F/R SW
S717 REC SW
S718 PLAY SW
M702 CAP.
B DECK
Q706 DTA144ES
(A) MOTOR SPEED SWITCH
C709 2.2/50
R732 5.6K
RV703 4.7K
RV704 4.7K
R734 10K
(HIGH) (NORMAL)
Q705 DTA144ES
(B) MOTOR SPEED SWITCH
R730 4.7K
D719
D718
R791 470
S701-1
HIGH SPEED
ON ← OFF
S701-2
NORMAL SPEED
ON ← OFF
DUBBING SWITCH BOARD
D716 – 719
ISS202
D716
D717
D726
ISS202
VOLTAGE DROPPING
R727 1.2K×3
R728
R729
C791 4.7/50
R701 10K
R702 4.7K
HIGH
SPEED
NORMAL
REC
D761
D762
D763
D761 – 763
SEL2210W
【LED BOARD】
Q307 2SC945
RECORD BIAS OSC
IC305 NJM4558D
RECORD AMP
Q104 2SC2785
REC MUTING
Q105 2SC2785
DUBBING HI-SPEED EQ ON SWITCH
Q305 2SA1175
MUTING DRIVE
D303 ISS202
R324 22K
C399
J302
HEADPHONES
R135
R134
R133
IC308 M
HEADPHONE
【HEADHONE JACK BOARD
Q304 2SA1175
METER MUTE LOGIC SWITCH
Q103 2SC2785
METER MUTING
D302 ISS202
IC703 TC4069UB
INVERTER
IC701 TC4011BP
NAND GATE
IC702 TC4011BP
NAND GATE
D705 – 713
ISS202
WHEN PUSH THE NORMAL SPEED BUTTON: –3.4
WHEN PUSH THE REC BUTTON: –6
WHEN PUSH THE HIGH/NORMAL BUTTON: 5.4
D705
D706
D707
D708
D709
D710
D711
D712
D713
D714
R706 470K
R714 47K
C701 1/50
R775 220K
C702 33/50
R717 330K
R749 100Ω
C703 3.3/50
R708 33K
R719 270K
C706 100P
R709 68K
R712 22K
R711 33K
D703
R710 47K
D704
R707 68K
C712 4.7/50
D701
D728
R703 47K
R704 33K
R705 47K
C710 10000P
Q701
R713 1.5K
Q702
33K×7
R720
R721
R722
R723
R724
R725
R726
S301-1
ON
OFF
S301-2
C-TYPE
B-TYPE
S301
DOLBY NR
【DOLBY BOARD】
TP701 SPEED
Q701 2SC2785
Q702 2SB1013
MOTOR ON PREDRIVER
D701–704, 714, 728
ISS202



Note:

- All resistors are in Ω and ¼ W or less unless otherwise specified.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- △ : internal component.
- : fusible resistor.
- : B+ bus.
- : B− bus.
- : adjustment for repair.
- AC voltage readings in the bias oscillator with a VTVM.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (50 kΩ/V).

  no mark : STOP < >: NORMAL SPEED
  ▶ : PLAY ≪ ≫: HIGH SPEED
  ●/▶: REC
  ▶▶ : FF
  ◀◀ : REW
- Voltage variations may be noted due to normal production tolerances.
- Switch

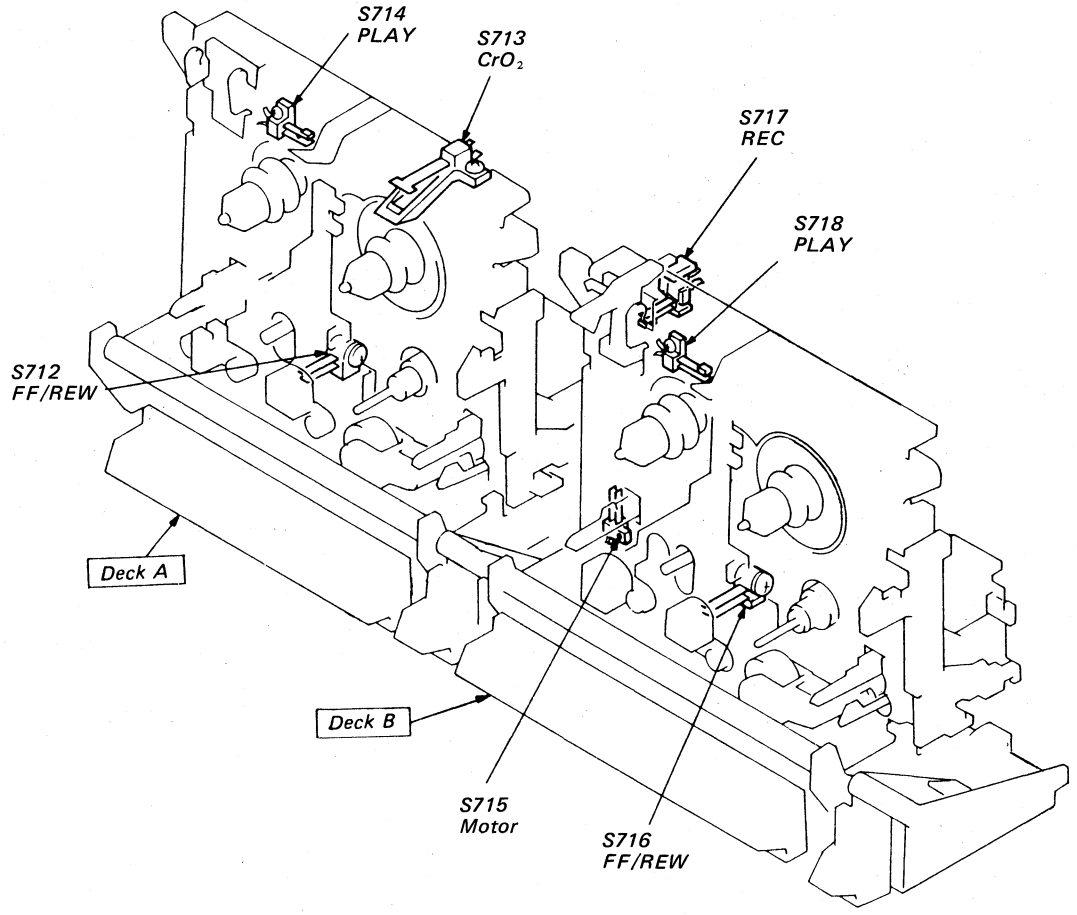
Ref. No.	Switch	Position
S301-1	DOLBY NR ON/OFF	OFF
S301-2	DOLBY NR B TYPE/C TYPE	B TYPE
S302-1	TYPE I (NORMAL)	OFF
S302-2	TYPE II (CrO_2)	OFF
S302-3	TYPE IV (METAL)	OFF
S303	Record/Playback	Playback
S501	POWER	OFF
S701-1	HIGH SPEED	OFF
S701-2	MORMAL SPEED	OFF
S901	VOLTAGE SELECTOR	220V

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- ⟶ : playback signal.
- ➡ : record signal.

LEAF SWITCH LAYOUTS



- **ON/OFF state of leaf switches at each mode**

mode / Switch	STOP	FWD		FF or REW		REC	TAPE DUBBING
		Deck A	Deck B	Deck A	Deck B		
S714 (PLAY)	–	ON	–	–	–	–	ON
S712 (FF/REW)	–	–	–	ON	–	–	–
S715 (motor)	–	–	ON	–	ON	ON	ON
S718 (PLAY)	–	–	ON	–	–	ON	ON
S717 (REC)	–	–	–	–	–	ON	ON
S716 (FF/REW)	–	–	–	–	ON	–	–

– mark indicates OFF state.